# EXCAVATING

Vol. XXXI — March 1937 — Number 3


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## LOOKING AHEAD

***These interesting articles will appear in early issues of* EXCAVATING. *Watch for them.***

### Something New In Stripping

The story of the 30-yard stripper, the first of six now operating in the coal fields, which is making open pit mining history for the Binkley Mining Co. of Indiana.

### But You Never Know

Where that super-efficient shovel salesman and dirt-mover, William Z. Williams, is concerned, you never know what will happen next. We'll tell you this much—he's just as successful at canal digging as he was at movie directing.


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F. O. WYSE, *Manager* — D. B. REED, JR., *Associate Editor*
ARNOLD ANDREWS, *Editor* — RALPH H. DIEHL, *Assistant Editor*
E. M. BEUSTON, *Advertising Manager* — JOHN I. MORAVEC, *Art Director*

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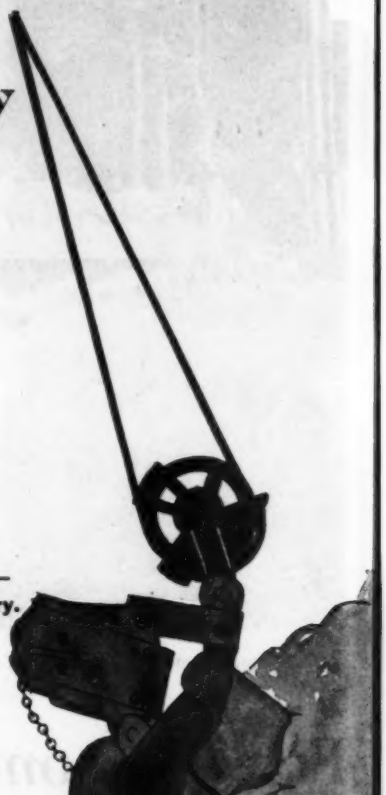
# The Story of Timothy Leary

By BOB BELT

One Timothy Leary, a son of the sod,
Had only one passion and only one God:
His idol, the shovel he mounted at dawn;
His passion, to be where the diggin' went on.



On any new job, the first face to be seen—
Regardless of time or of place or machine,
Whether P. and H., Koehring, or Bucyrus-Erie—
Was the broad grinning visage of Timothy Leary.

Well, he followed the diggin' wherever it went.
With a dipper to swing, he was always content.
His lust for the loadin' transported his body
From Bonneville Dam clear to Passamaquoddy.

He was working a road job one day about ten
And he bit at a piece where some Greek powder men
Had left in a charge that had failed to explode.
It deposited Tim some two miles up the road.

Well, Timothy's soul soon appeared at the gates
Where St. Peter checks over the new candidates.
"You have worshipped an image in cable and steel,
But I might sneak you in if this faith you repeal."

Well, Tim looked around and saw nothing but fluff—
Rainbows and clouds and all that sort of stuff.
"Thanks, Peter old pal, it's pretty, that's true,
But I prefer it below, where there's diggin' to do."

# BLUE GUMBO

***G. F. Howard's 3/8- and 5/8-yard shovels handle wet and varied digging jobs with record speed in Republic Steel mill modernization work***

*By* **WILLIAM R. MURPHY**

SAY "Blue Gumbo" to G. F. Howard, President of G. F. Howard, Inc., Youngstown, Ohio, excavating contractors on the remodeling and mill extension operation at the Republic Steel Corporation plant at Niles, and strangely enough, he will think—not of that mucilaginous and gooey soup so dear to the heart of the lover of good food in the deep South—but rather of the sticky, water-soaked bed of blue clay into which his power shovels have been biting since early last October.

"A wet job and a tough job," said Mr. Howard to a reporter recently as he surveyed his busy earth-moving units in action, "but," he added proudly, "we've got it licked, and we're away ahead of schedule!"

Republic remodeled an old plant to be used for annealing, tinning, pickling, boxing, storage and shipping; and erected an entire new group of buildings.

There is the Coil Storage Building; the Continuous Pickler structure; Tandem Mill; Motor Room; and the Electric Cleaning and Cutting Building.

The entire new plant is to be used for the manufacturing of strip tin plate by the most modern and scientific methods known to the steel industry. The construction of this huge strip mill attracted the keenest interest in steel circles throughout the East.

### General Contract

The Republic Steel Corporation's plant at Niles occupies about 35 acres of ground.

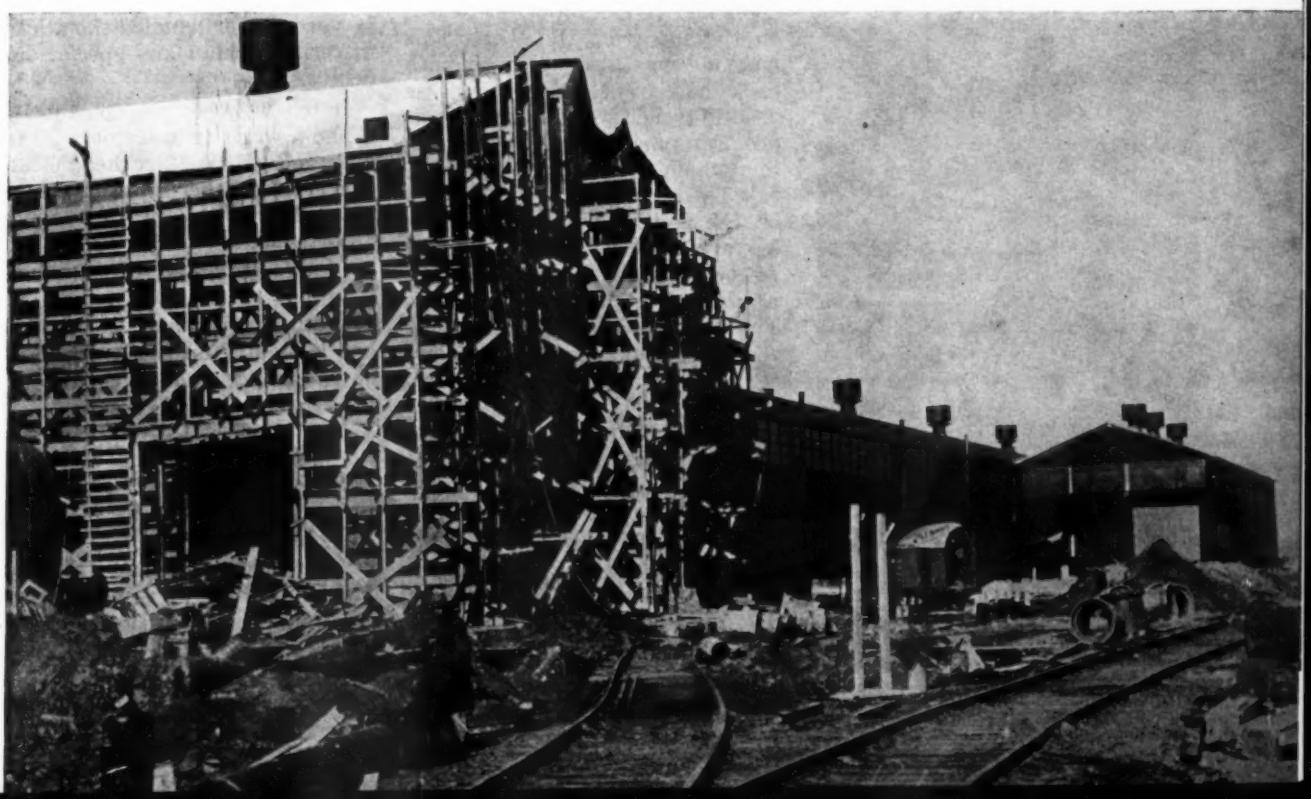
The general contract was awarded to Helley-Murray Company, Youngstown, Ohio, and called for concrete foundations, plain and re-inforced; walls of brick and asbestos protected metal; steel sash windows; steam unit heating systems; roof of corrugated steel, plain and asbestos protected; and platforms for furnaces and rolling mill machinery.

Work progressed simultaneously on a number of jobs in the big mill yard. The excavating work, the remodeling of the old mill, the laying of gas, water and sewer lines, the installation of electrical apparatus, and all necessary foundation work, and later bricklaying, all proceeded constantly, with dove-tailed schedules checking in perfect rhythm.

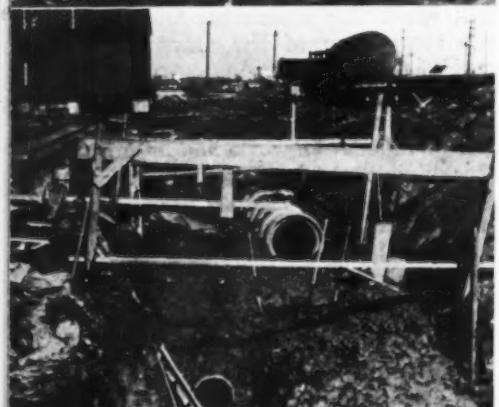
About 20,000 yards of concrete were poured for the foundations and machine platforms. One of these mats is 8 ft. thick—30 ft. wide and 70 ft. long.

### Excavating Contract

The excavating contract was awarded to G. F. Howard, Inc., 25 West Hylda Street, Youngs-



*General view showing remodelling of the Republic Steel plant at Niles, Ohio. In the right center, G. F. Howard's 3/8-yard machine is laying pipe.*



• *Top: The 10-B, with back hoe front end, dug trench, layed pipe and refilled the trench in record time. Material was wet and sticky. Center: A close up of a section of trench, showing method of laying pipe. Bottom: Having dug the trench, the 10-B swings a section of pipe into place.*

town, Ohio. The earth-moving requirements involved the removal and disposal of approximately 30,000 cubic yards of overburden, in addition to the removal of old furnaces, platforms, metal plates, general junk debris and four-foot granulated slag overburden at the site of an old hot mill on the company property and adjacent to the proposed group of new buildings. The excavation began October 14, 1936, on a 90-day contract.

A close schedule was initiated, leaving little leeway for delays or contingencies. The general contractor followed closely upon the heels of the excavators, requiring careful planning and brisk execution on the part of both crews in order to eliminate costly waiting or postponements. No such hitch occurred at any time. The only time the dirt-moving equipment was idle, Sundays included, occurred when the company engineers requested a cessation for a day or two while company crews were busy on pipe laying or other necessary tasks. The excavating work progressed with the regularity of a time table, being completed slightly ahead of scheduled time.

### Digging

Excavating was handled with two Bucyrus-Erie gasoline shovels. A ⅜-yard 10-B, with 15-foot boom and 11-foot dipper stick was on the job from the start. This machine was also equipped with back hoe front-end, which was used in trench work, and an Eastern Equipment Co. lighting system which proved extremely useful. The second shovel, moved in on the job in November, was a ⅝-yard 19-B, with 18-foot boom, 14-foot dipper stick, and Eastern Equipment Co. lighting plant. The ⅜-yard rig, with its small clearance requirements, was used considerably for inside excavation.

The disposal site was approximately 200 yards from the excavation site, and off the company property.

Two units of five International trucks each were used for dirt removal—five 1½-ton, and five 2½-ton capacity. These International trucks were equipped with Firestone pneumatic ground grip tires, and Mr. Howard had each truck specially equipped with 10-speed transmissions for the heavy, soft going.

Except for one location which necessitated hauling up a 25 per cent grade, the trucks were able to load and haul to full capacity at all times. The footing throughout was the same sticky, wet mud and clay which constituted the overburden. All the trucks performed handsomely without a breakdown or a single instance of stalling with a load.

### At the Old Mill Site

In the early stages of the excavating the work was entirely within the old mill, and the 10-B moved inside the building and "did her stuff" with a minimum of clearance. Even here the soil had a high moisture content; and unfavorable weather, almost from the beginning, in addition to the speed requirement and cramped conditions, kept the shovel crews and truck gangs at high pressure continually.

One cut made by the 10-B at the old mill site was 8 ft. wide, 11 ft. 6 in. deep and 400 ft. long. Another was 30 ft. by 30 ft. square and 14 ft. deep. All this work was done standing in water, chipping away at the sopping "blue gumbo" clay. The regular ⅜-yard dipper handled the sticky material without any special difficulty.

In one working position the 10-B had a working space only 20 ft. wide and with a 12 ft. head clearance. In another position there was a 14 ft. head clearance, with a 20 ft. space for operations.

In one set-up, the 10-B stood in a pit 14 ft. deep and 25 ft. square, digging and lifting dirt and unloading on trucks standing on the bank above. In this operation the bank scoop was utilized.

### Water, Water Everywhere

There was no dry soil encountered during the entire period of the contract. The site is on swampy ground, not far from the Mahoning River. From the very beginning of operations it was necessary to pump water from

the diggings in order to insure workable conditions.

Three 3-in. Rex water pumps were installed, forcing a stream of water into a 3-in. pipe leading to a sewer main. The little pumps chugged merrily day in and day out, under the supervision of F. S. Peckenbaugh.

A great deal of rain was experienced during the early period of the operations, but the work of the pumps enabled the crew to keep the equipment busy steadily without interruption.

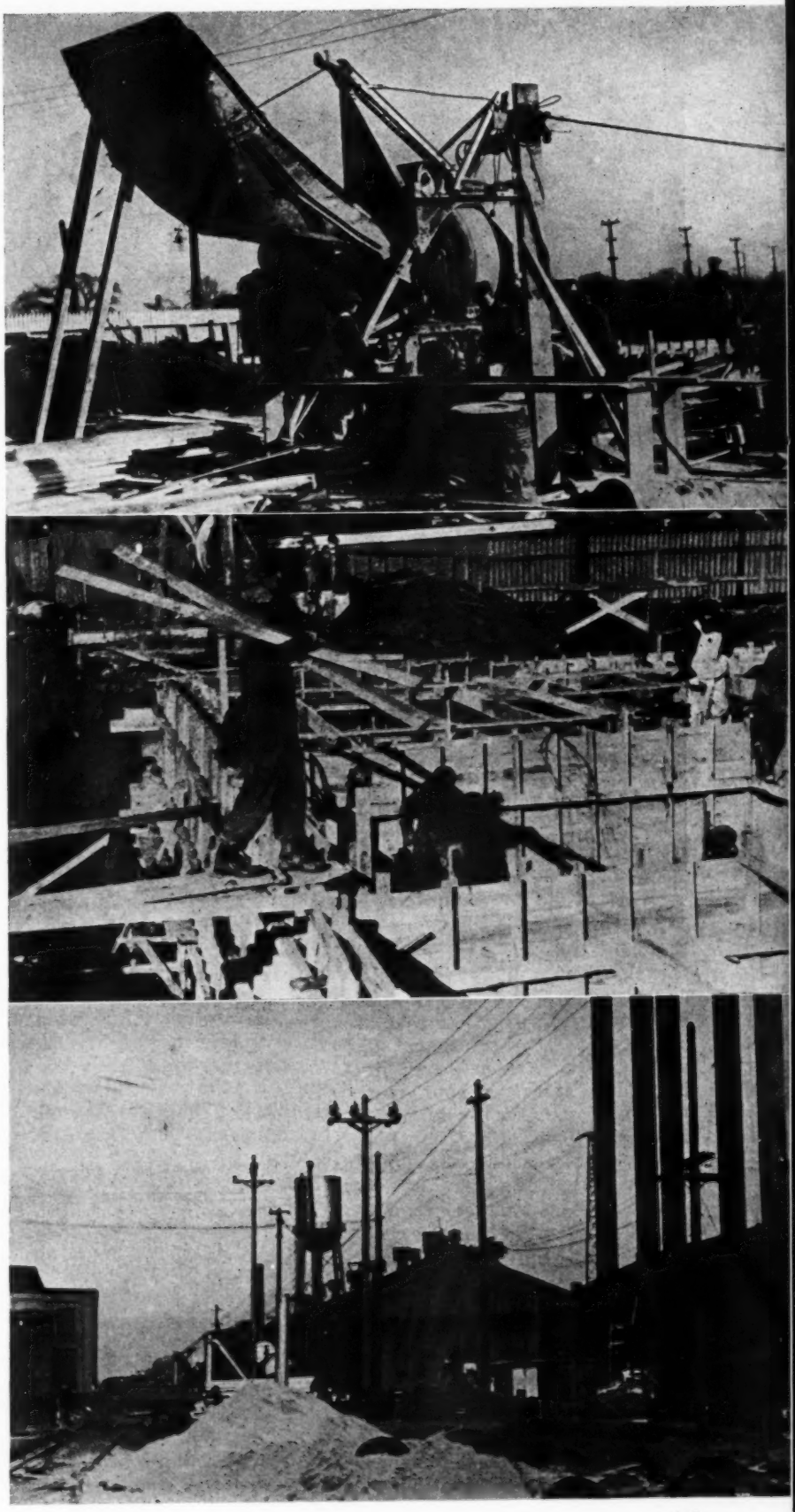
**Shovels Never Off Mats**

As an indication of the nature of the terrain, the power shovels worked at all times on mats. There were treacherous holes in the old mill, and part of the time the shovels stood in several inches of water. At no time was the footing solid enough or dry enough for a shovel to rest directly on the ground.

Ordinary planks were used for mats on the higher levels, where the footing was comparatively solid, but when the shovel was forced to work standing in a hole, with several inches of water underfoot, heavy mats were made of planks 12 ft. long, 2 ft. wide and 6 in. thick, cleated together into a platform, and with heavy wire cleats to which a hook and chain could be attached from the dipper.

One of 10-B's jobs, after the regular excavation work was completed, was to dig a trench 9 ft. deep, 10 ft. wide, and 1500 ft. long, to house three pipes: one 40-in. sewer pipe; one 15-in. sewer pipe; and one 12-in. water pipe. A 10-B Bucyrus-Erie back hoe was used for this work.

Much of the terrain involved in the trench digging consisted of fairly large rocks. In spite of this problem the ⅜-yard shovel handled this trench digging easily and speedily, averaging 175 ft. to 200 ft. lineal feet per day, on a 10-hour shift.



• *Top: Heller and Murray batcher in action. Center: One corner of the foundation work handled by the general contractors, Heller and Murray. Bottom: General scene in the mill yard, showing sand brought in for concrete mixing.*

*• Top: The ⅝-yard shovel mounted on a trailer and ready to move in on the job. Bottom: Early clean-up work on which the 19-B was used. Operator Vetter says he can do a 1¼-yard shovel's work with this rig.*

**Work of the Power Shovels**

According to the contractor, the work of the 19-B ⅝-yard shovel, which removed as much as 900 yards of dirt in a 10-hour shift, was fully equal to that of an old type 1¼-yard shovel, on account of the faster swing, giving more passes per hour, more than making up for the difference in dipper capacity. The 19-B shovel crew consisted of an operator and an oiler.

Howard Vetter, a veteran of 18 years' experience on power shovels, including all types and sizes, is the operator on the 19-B shovel. He is justly proud of the record made by his shovel which he considers the most efficient he has ever operated. Mr. Vetter, when asked how he accounted for the excellent showing made by the crew, in the face of a difficult terrain, incessant water seepage, and extremely sticky digging, said, "The 19-B is a great worker. It digs more dirt at a pass than any ⅝-yard shovel I ever handled, and it makes more passes per hour. It has a full revolving swing and it can work in extremely close quarters. That's the answer—a smart shovel that almost thinks for you. No trouble to break records with that kind of equipment."

Vetter declined to estimate the total yardage of dirt he has moved in his long experience on power shovels, but admitted it might run to 1,000,000 cubic yards, more or less. He denied the gentle hint that he was one of the men who was "remaking the world" but he confessed that after he and his shovel got through with a job, the place never looked the same again!

The best record made by the ⅜-yard shovel, under the difficult conditions, was 500 yards in a 10-hour shift. The 10-B crew consisted of an operator and a helper.

A careful record of the fuel consumed by the 10-B showed that approximately 2 gallons of ordinary gasoline per hour were used. Since the average dig per day of 10 hours was around 400 yards, the cost for fuel was less than one cent for each yard of dirt removed.

The crews operated on a ten-hour shift, seven days per week, practically without let-up since the work began October 14, 1936.

The operator on the 10-B shovel, D. A. Opel and his helper Roy Black, were both experienced men who enjoyed doing unusual stunts which aroused the interest and admiration of their colleagues on the big construction job at Niles.

The versatility of the fast swinging, ⅜-yard shovel was demonstrated time and again on this job. Besides straight excavation work under restricted and difficult conditions, the shovel was called upon for trench digging, lifting the sections of sewer and water pipe into the trench, and then lifting the dirt it had removed and piled on the bank, back into the trench to cover the pipes.

**Lighting Equipment**

"To what extent do you calculate the lighting equipment added to the capacity of a digging unit?" we asked Mr. Howard.

"Well, the days were pretty short at that time of the year," he replied. "I should say the lights were on 25 per cent of the time. We had some very dark days, you know, especially in the early part of January. I wouldn't say that we would have shut down entirely without the lights on dark days, but they surely made the work easier and added to the general efficiency, especially the hauling. With the soft swampy soil and the water hazard, we might have been delayed many times by stalled trucks if

we had worked in semi-darkness. Yes, I believe lights helped us a great deal and we were able to work a good ten hours on winter days when the natural light was greatly reduced. It doesn't pay to economize on light if you want to do a good job and do it on time."

**Little Giant "Plays Hookey"**

Mr. Howard was chuckling over some little joke of his own and the reporter asked him, "How come?"

"I was thinking of a stunt Vetter pulled," he said, "when I told him one evening that we had two cellars to dig and the 19-B would go on digging at the Republic job while the 10-B would have to play 'hookey' from the job for a couple of days. Well, that night Vetter and his helper ran the 10-B up on its trailer and brought it down to our headquarters behind one of our trucks. The next morning he drove the truck with the trailer behind, carrying the little 10-B as snug as you please to the first cellar job, unloaded the shovel, wheeled it into position and dug 200 cubic yards before noon.

"Right after lunch they loaded it back on the trailer and away they went at 20 miles an hour to the other location and before quitting time they had dug out another cellar, about 200 yards more. In this second case they had to ram a hole in the side of an old building, walk the 10-B inside and dig from inside the building.

"The next morning the 10-B was back on the job at the Republic plant, looking as innocent as you please and digging for dear life after its brief holiday."

On still another occasion the "Little Giant" was set down between two stores, 7 and 12 stories high respectively, and dug a cellar under one of the buildings.

**Lifting Pipe Sections and Refilling Trench**

When the sewer and water pipe trench had been dug, with the dirt piled on the bank, the next job was to assist in laying the pipe and covering it with the removed earth. For this work the crew of the 10-B shovel simply attached a chain and hook to the dipper (without fastening the dipper to the boom) and as the ground crew passed a chain through the pipe sections, one at a time, the stick was lowered to position, the hook caught in the chain running through the pipe, the shovel then raising the pipe and lowering it into the trench in position for the pipe setters.

The 10-B shovel kept a crew of men hustling to keep up on the pipe laying job. While the men were adjusting the chains to the sections of pipe, the 10-B lost no time waiting for work, but kept busy lifting dirt into the trench to cover the pipe already laid.

Railroad tracks run through the mill yard, and into several of the buildings. It is along these tracks that the sewer and water pipe trench was dug, and as fast as the trench was covered, tons of limestone slag were dumped in piles atop the trench. Then the bulldozer went into action, hitting these piles of slag and levelling them down to street smoothness.

Thus, a dry, solid street was constructed where once only a muddy path existed, supplying a greatly improved roadway for the heavy hauling incident to the manufacture of steel products.

For this work a Gar Wood bulldozer, mounted on an International McCormick-Deering caterpillar tractor, was used throughout the entire operation.

**Establishes Excavation Record**

By keeping ahead of schedule, in spite of unfavorable soil conditions, cramped quarters, "water, water everywhere," and winter weather, the excavating crews established a record that prom-

*(Continued on page 155)*

• *After the pipe was covered, heavy slag was dumped on the fill and bulldozed to smoothness—making a dry hauling road over the soft, wet ground. These views show a truck-load being dumped, and the bulldozer swinging into action.*

# Stretching Township Road Dollars

***Skillful use of equipment and labor helps give Bethany township excellent value for its road dollars.***

*By* **LLOYD S. GRAHAM**

TOWN highway superintendents are often required to work on small budgets and still show good results. The only way in which this can be done is through high efficiency.

Charles W. Phillips, superintendent in Bethany township, Genessee County, New York, has been faced with this problem and is highly successful in solving it. On a budget of $10,500, plus state aid, he must maintain 47 miles of town roads, and handle snow removal on an additional 20 miles of county roads.

Principal equipment, in year 'round use, includes a Bucyrus-Erie ½-yard shovel; two International 5-yard trucks; a Buffalo Pitts steam roller; three graders, York, Russell and Adams; a Caterpillar 50 tractor; and a La-Plant Choate hydraulic snow plow. Since the amount and type of work to be handled varies considerably from season to season, and even within one period, the labor force must also be varied. Superintendent Phillips has found, however, that best results are obtained by keeping three of his skilled men on a year 'round basis. Experience helps them in handling the work smoothly and at lowest cost, and since their jobs are permanent, these men take pride in knowing—and doing—them well.

• *Superintendent Phillips, who is giving Bethany Township a lot of road for its money.*

At this time of the year, snow removal is the principal maintenance problem. The heavy snows of 1936 showed what had to be, and could be done. In the face of 10- and 12-foot banks, the town's regular plow would have had a long, tough job. Consequently, Mr. Phillips moved the shovel in on the work, and it battled the drifts continually for 100 hours until all the roads were clear. One operator worked the 16-B for 36 hours without a break except the time required for meals.

One hard snowbank took 40 hours to clear, with the shovel working top speed; digging snow, dropping it on the bank beyond the road, and pushing it out of the way. The success with which this tough assignment was handled proved the wisdom of keeping equipment ready to go

throughout the year, and keeping a staff of good men ready to handle any emergency.

The snow problem will be met again this year, but superintendent Phillips and his crew will have the experience gained from last winter's tough training school to use in keeping the roads open. Drifts are sure to be a problem because most of road mileage in Bethany township runs North and South, while storm travel is from East to West.

Eight miles of snow fence are put up every fall to help keep snow off the roads, and the little system Mr. Phillips has worked out for getting this fence placed quickly and efficiently is one indication of how he manages to get so much done at so little cost. Formerly, fence was placed by a crew of seven men working from one truck. An average of 75 rolls per day was placed under this method.

Last fall, two trucks were put on the job, each having a crew of three men. Each driver recorded the number of rolls his crew handled in a day, and the work took on the aspect of a contest. The records show that one day, 46 rolls of fence were placed by one crew, and 47 by the other, making a total of 93 compared to 75 secured with one seven-man crew. There's nothing like a little competition, Mr. Phillips will tell you, to get things done.

The construction problem in Bethany is one of re-building and improving existing roads. This work is laid out on a long-time plan, and last year 1.6 miles of road was built. This was hard surface road, 14 feet wide, with ditches at the margin of the road line, and shoulders as wide as possible between surfaced section and ditches.

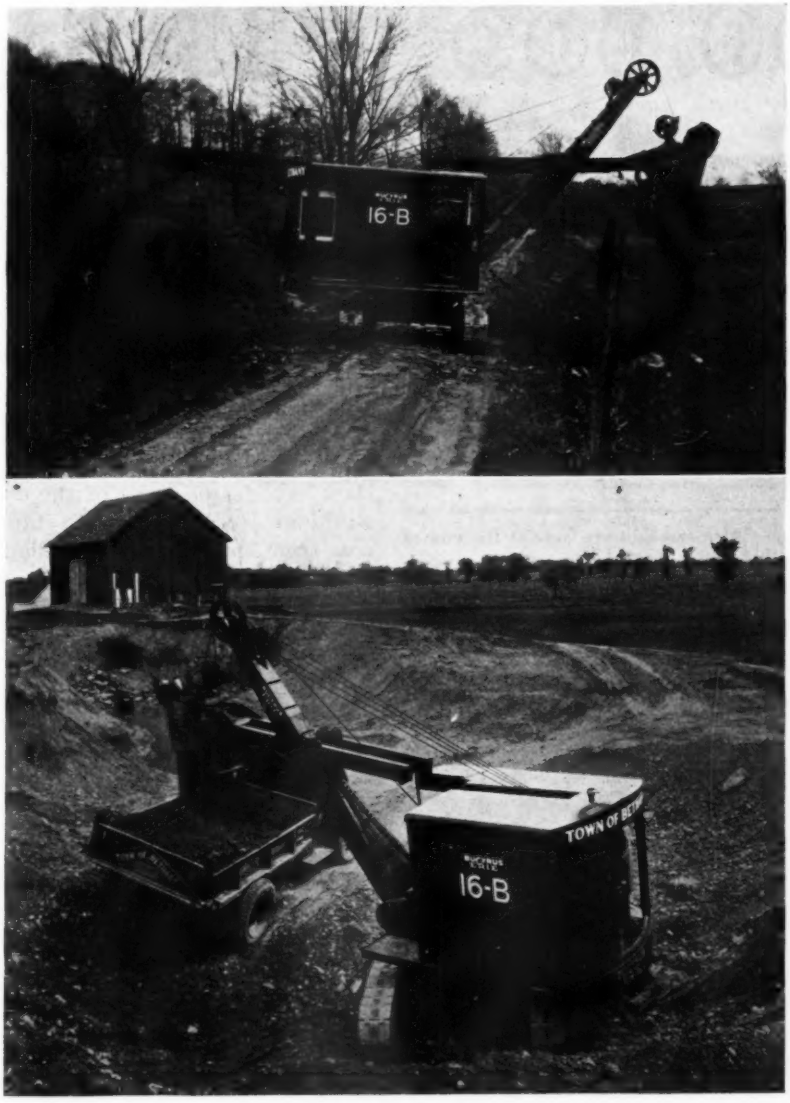
The country is very hilly, and constructing the new road means considerable cutting and filling to eliminate big grades. One of the most recent jobs of this nature involved moving 6000 yards from the top of a hill and using it for fill at the bottom. This stretch of road was graded and is being left to settle during the winter. Before the spring rains, it will be given a salt binding.

There are moderately good gravel beds in the township, and this material is purchased as needed for road work—the average amount used being about 5,000 yards per year. Longest hauls for this gravel are four to five miles.

With the current tendency to widen roads and shoulders, and increase visibility, brush forms a considerable annoyance in this section. Cutting it back has been found inefficient, as the growth springs up rapidly and the job has to be re-done every year or two. Consequently, the shovel has been assigned the job of rooting out the brush, at which Mr. Phillips says it has proved extremely satisfactory. He says the size of some of the trees the machine can remove without difficulty is amazing.

The tree problem, while not as pressing as the brush, has been difficult. Mr. Phillips met this with the county-paid relief labor which was available several years

*(Continued on page 155)*




• *Top: One of the highway department's summer jobs is widening of existing roads. Here, the ½-yard shovel is shown removing a stump on one shoulder and cleaning up a bank on the other. Bottom: Adequate gravel deposits for road work are found in several places in Bethany township. The shovel loads the desired amounts to trucks. A number of jobs like those shown here enable Superintendent Phillips to keep his equipment in constant use.*

# $50,000,000 FIRE

***Engineers Encounter Many Problems In Attempting to Check Mine Blaze.***

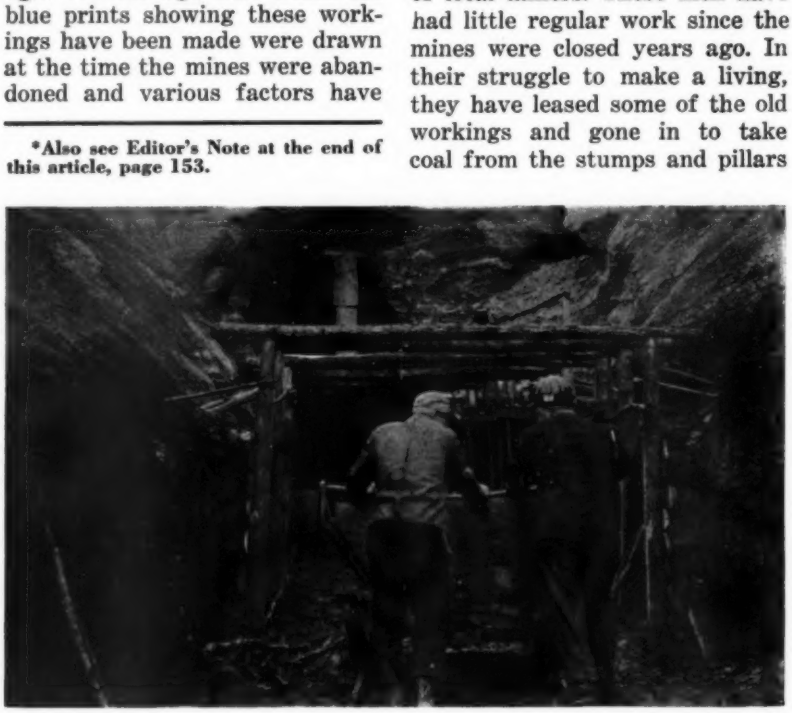
**By C. A. ROBINSON***

MAJOR engineering problems, complicated by inaccurate blue prints and maps, confront the engineers in charge of the $365,000 WPA Mine Fire Project at New Straitsville, Ohio, which the Works Progress Administration is operating in an effort to check the spread of a coal fire which has burned for 53 years. This fire, burning since 1883, has destroyed $50,000,000 worth of the famous Hocking Valley bituminous coal deposits and is threatening still more valuable deposits in adjacent fields.

On three separate "fronts", tunnels are being dug through "bottle necks" of the coal bed. The tunnels are to be filled with noncombustible material to form a barrier against further advance of the great underground conflagration.

The tunnels, whenever possible, follow old mine workings which were abandoned 30 or 35 years ago. The tracings from which the blue prints showing these workings have been made were drawn at the time the mines were abandoned and various factors have operated to change the old workings since that time. One difficulty has been caused by a practice of local miners. These men have had little regular work since the mines were closed years ago. In their struggle to make a living, they have leased some of the old workings and gone in to take coal from the stumps and pillars

*Also see Editor's Note at the end of this article, page 153.



• *On Plummer Hill, a tunnel is being rushed ahead, with crews working a heading on each side of the hill. When this picture was taken, the flames were only 50 feet away, and speed in digging and filling the tunnel was vital.*

• *This view was taken in the opposite end of the Plummer Hill tunnel from the one on the preceding page. Halting the fire's progress requires filling this tunnel with a non-combustible barrier.*

that were left in the mines as roof supports. Often individual pillars contain from 1,000 to 2,000 tons, and although the work is hazardous, the miners have managed to pick up a few needed dollars in this manner. The tracings were made before the pillars and stumps were taken out, and the engineers now find great discrepancies between the blue prints and the actual conditions of the old workings due to unrecorded cave-ins.

Down the years surface water has been constantly seeping down through the sand rock, shale and slate. The engineers now pushing back into the old workings frequently find further cave-ins and other obstacles that are not recorded on the blue prints. If such an obstruction is not too big, the engineers attempt to penetrate it. When this is not practical, they tunnel around. No one can determine where these cave-ins are except by exploration.

### Attacking Fire At Three Points

The barrier being installed south of New Straitsville, designated as Project B, is an example of one type of problem. The blue prints show a clear way through old workings where the barrier was to be built. A drift entry was made, but after going a few dozen feet through the old tunnel, a fall which forced the engineers to change the route was discovered.

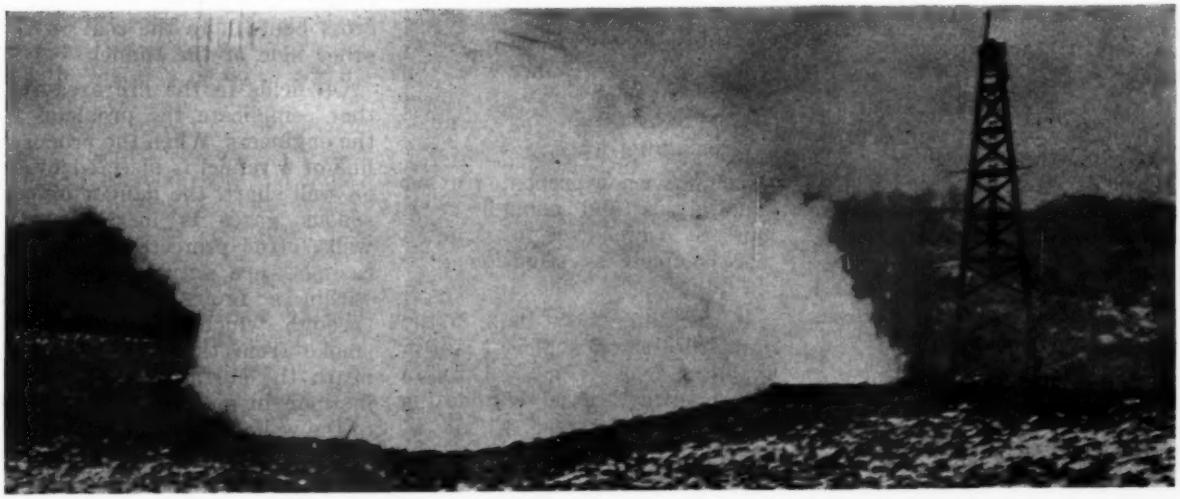
• *Smoke pouring through surface cracks shows how close the fire is to an oil well. The oil and gas wells in this region are protected by three, and often four, casings, and go on producing with flames only a few feet away.*

On Barrier B the engineers are now forcing their way through solid coal, driving around the obstruction. They plan to connect with the old tunnel beyond the cave-in.

Barrier C, the project west of New Straitsville, is the shortest of the three. It is more immediately threatened by the mine fire than the other barriers. Between 150 and 200 feet from the barrier site, the billowing smoke of the mine fire is a constant reminder that flames are rapidly approaching the tunnel. Two shifts of WPA workers labor day and night to push the tunnel through before the fire reaches the bottle neck. If the fire burns through, coal fields valued in the millions will be threatened with destruction.

### Water In the Way

Another engineering problem results from the fact that the shale immediately above the coal bed in the New Straitsville section has a content of oil and tar which makes it highly combustible. The workers, in order to make sure that the fire will not cross over the barriers, have to remove the shale and slack above the coal as well as the coal itself. Otherwise, the fire would burn through this substance and reach



• *When the owners of this mine went home one night, they thought they had 35 acres of free coal. Next morning flames filled this entryway and shot 50 feet in the air.*

the coal deposits beyond the barriers.

Barrier A, Northeast of New Straitsville, is the largest individual project. This tunnel will be about a mile in length, with stripping on each end at the surface. Here the engineers face the problem of draining off an underground body of water before they can drive through the tunnel. The depth and extent of the water cannot be determined from the data in hand because no elevations have been recorded. The coal in this bed is at a lower point in the earth than at other mining locations in the immediate vicinity, and the water drains down into the old workings through which the barrier is to be built.

Engineers puzzled over the most effective and economical means of taking out the water and pushing the tunnel through. They decided to make a drift entry and push a new tunnel in for a distance of about 50 feet. At this point it will strike an abandoned mine. A ditch will be dug along the floor of the tunnel and this will drain off the water from the interior of the old workings. This device may not drain off all the water, but it will remove a sufficient quantity to permit the engineers to enter the old workings by means of a manway several hundred feet ahead of the new drift opening. Thus they will be able to ascertain the extent of the remaining water.

The water now prevents further explorations and enough of it must be drained off to permit a more complete investigation of the old mines.

If the ditch to be built in the tunnel drains off sufficient water, an entry may be made through the manway, thus eliminating several hundred feet of tunnelling. Preparations are being made to run the tunnel through from the drift entry, however, in case sufficient water is not taken off by the ditches.

### "Catch-As-Catch-Can" Planning Necessary

The engineers on the mine fire project are James R. Cavanaugh, chief engineer; Michael A. Boyle, project engineer; and Frank C. Ridley, safety engineer. Because of the conditions found in the old workings they are forced to proceed from day to day, altering their plans to meet each new condition as it develops. If they run into a fall, they must figure out a way to break through it or tunnel around it. If they find a water obstruction, such as that on Barrier A, they must keep trying until they find a way out.

Water, strangely enough, will not check the fire, if it is left in the mine. Since the shale above the coal bed is combustible, the fire spreads through it and crosses over the water just as easily as though it were burning through solid coal. Likewise, the fire may burn beneath the water since some 18 inches to two feet of coal was left at the bottom of the mine because of its high sulphur content which lessened its commercial value. This coal, however, burns readily when the mine fire reaches it. As the coal burns it forms an ash seal against the water and enables the fire to cross beneath to the coal on the other side of the tunnel.

Oil fields in the fire area further complicate the problems of the engineers. When the proposed line of a tunnel is bisected by an oil well shaft, the danger of poisonous gases is increased. Oil wells, often protected by several casings, are actually producing within a few feet of fissures through which come clouds of smoke from the raging fire beneath the surface. The barriers, in some instances, will run close to the wells and the engineers are forced to explore carefully as the work proceeds in these danger

areas. If every precaution is not taken an inrush of gases caused by proximity to the oil well might result disastrously to the workers.

### Fire's Origin Unknown

The New Straitsville mine fire started in 1883. A bitter strike culminated in the firing of five mines. The persons responsible for this act were never identified and the origin of the fires is wrapped in mystery. Some old timers around New Straitsville say that mine guards employed by the operators during the strike set fire to the mines because they were soon to be discharged. Others maintain that the strikers set the fires. Be that as it may, the fire has been raging underground for more than half a century and, if it is not checked, experts figure it may burn for another 150 or 200 years.

Valuable coal deposits to the west, south, and northeast of the fire are threatened. It is on these fronts that the barriers are being built. Mining engineers estimate that several hundred million dollars worth of coal will be saved, if the barriers are completed before the fire eats through. Just south of Barrier B, for instance, lies a field of virgin coal which, it is estimated, can be developed to produce an average of 1,000 tons a day for a period of 10 years.

In the past there have been other efforts made to stop the fire. At one time, concrete walls were put down at strategic points, but the intense heat cracked the concrete and the fire passed through the fissures. On another occasion a creek was diverted, and the water sent down a shaft into the seething cavern. However, gases forced upward by the water spewed against live coals along the cavern roof, and caused the fire to spread more rapidly than ever above the water line.

### Life Over the Fire

The residents of the burning area have become accustomed to "living on a volcano", but there have been times when speedy action was needed to save life and property. Highways over burnt-out "pockets" have fallen in and had to be filled. The heat opened a surface crevice in one pasture and a farmer saw one of his horses fall in and be consumed by the fire before rescue was possible. Miners still working in the area have felt shaft walls get hotter and hotter until they were forced to leave hurriedly. Experience has taught them to gauge the danger point.

### Flames Shooting Through Surface Cracks Provide Picturesque Night Spectacle

Not long ago pupils in a new school house felt the temperature rise, and investigation showed the underground fire to be within 20 feet of the building. An emergency crew dug around the foundation smouldering coal and saving the structure.

Clouds of smoke and steam, and even flame, are visible at surface points—giving the area, particularly at night, the aspect of a section of Dante's Inferno.

Although there is little danger to life in the area, the economic loss that will be sustained if the fire spreads to adjacent fields is so great that work on the barriers is being pushed ahead at full speed. Directed by the three previously mentioned engineers, 90 WPA workers, using dynamite, power shovels and plenty of "elbow-grease", are working night and day to check the onrush of the largest mine fire on record.

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**Editor's Note:**

**For some of the material in this article, photographs and information, we are indebted to the Information Service of the Works Progress Administration.**

• *Intense heat below the surface caused this section of hillside near New Straightsville to collapse and slide. Flames can be seen through the surface cracks.*

# EXCAVATING

FOUNDED 1925

A Monthly Publication

Devoted to the Excavating Industry

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F. O. WYSE
*Manager*

ARNOLD ANDREWS
*Editor*

D. B. REED, JR.
*Associate Editor*

JOHN I. MORAVEC
*Art Director*

RALPH H. DEIHL
*Assistant Editor*

E. M. HEUSTON
*Advertising Manager*


## Sit Down Strike

WITH both sides claiming victory in the recent General Motors strike, only one thing can be regarded as certain—we haven't seen the last of this new labor weapon. Already, new sit-down strikes are breaking out over the country like a rash.

At first thought, it might not seem that the dirt-moving industries were as open to this particular form of danger as types of business with less mobile plants. And yet—the sit-down strike could be applied, more or less successfully, to our field. As with other industries, increasing prosperity is evident in the excavating fields; increasing prosperity breeds strikes; strikes utilize any weapon that applies coercion effectively to bring an employer to meet terms laid down by the strikers. Ergo union leaders and racketeers in our field are already giving thought to applying "the sit-down" to our type of industry.

Workers might, with more or less success, pull a sit-down strike which would tie up progress on a big dam job, for example. Or a grimly seated crew might toss a nice sizable wrench into the works of a tunnel job. Quarries and open pit mines, with their relatively immobile plants, are possible victims.

Even relatively small jobs, with half-a-dozen pieces of equipment, cannot be considered entirely immune from danger. A foundation excavation might be effectively tied-up by a group of militantly-seated men. Supplies for all types of excavation jobs could be cut off. No contractor could keep going long without fuel, aggregates, and other supplies.

There are two factors—the contract-time limit and the seasonal element—in most contract jobs which would make them particularly susceptible to damage from the types of "passive" resistance we have seen demonstrated. Excavation jobs, be they tremendous dams, or small highway contracts, are likely to carry stiff penalties for behind-schedule completion. Thus, whether a sit-down strike could be successfully maintained for an extended period or not, the contractor's purse might be effectively shrunk.

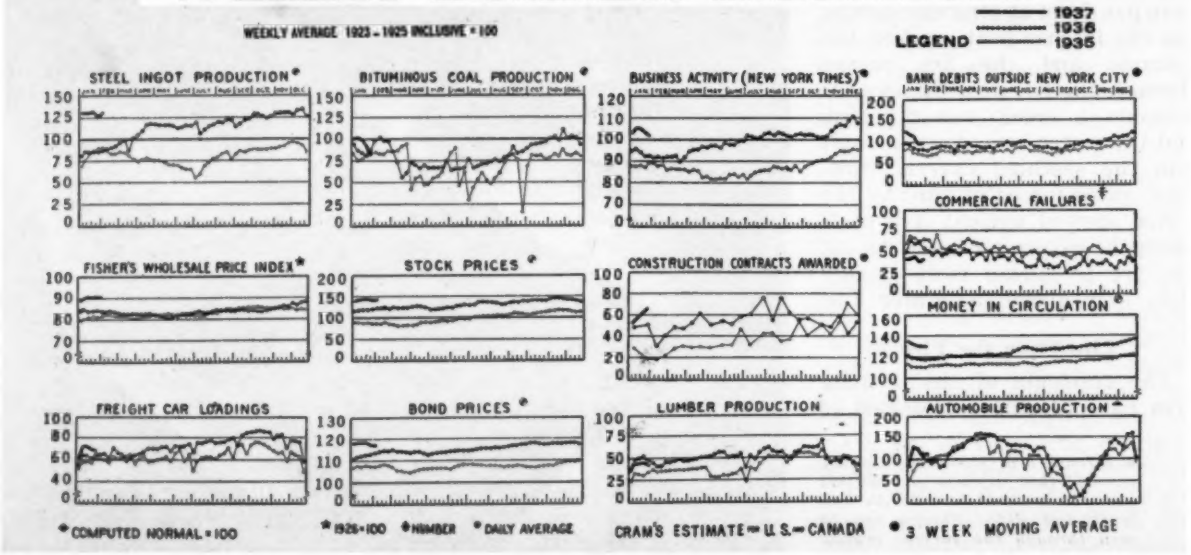
What the answer to the sit-down strike is—if there is a workable answer—is unknown as yet. When strikes are called, not because of genuinely unfair conditions, but as simple "hold-up" measures, it is difficult to plan in advance the protective steps that should be taken. Certainly, wherever possible, contracts should be drawn with protective strike clauses. An effort should be made to locate duplicate sources of vital supplies so that if one source be tied-up, another will be promptly available. Cooperative measures through local trade associations can be utilized to secure advance information of the activities and methods of labor racketeers.

The excavating industry cannot escape some labor troubles in this period of returning prosperity; troubles of considerable cost to both the industry and its employees. Undoubtedly the "sit-down" will be one of the forms in which this trouble will come. It would be well, when the time comes, if our industry had devoted considerable thought to the problem, and knew at once the most effective measures to be taken in each individual situation.

## Construction Rise Continues

A GAIN of more than 20 per cent was shown in construction during January as contrasted with the figures for December 1936, according to data from F.

## WEEKLY BUSINESS INDICATORS



W. Dodge Corporation. The January 1936. For the 37 eastern states covering all classes of construction, the total amounted to $242,844,000 in January 1937 and compares with $199,695,700 for December 1936 and $214,792,800 for January 1936. Each major geographic district registered a gain over December totals, except New England, the Central Northwest and the New Orleans district (Louisiana and Mississippi). Gains over January 1936 were scored in all principal territories except New England, the Chicago district (No. Illinois, Indiana, Iowa, Southeast Wisconsin), the Central Northwest, Kansas City district (Kansas, Western Wisconsin, Oklahoma and Nebraska), the New Orleans territory and Texas.

The January 1937 construction total for the 37 eastern states as a whole included $78,423,700 for residential building, $95,968,900 for non-residential building and $68,451,400 for public works and public utilities. The residential figure was 20 per cent greater than the December 1936 figure and more than doubled the total of $37,439,500 shown for this class of construction during January 1936. Gains in residential building over a year ago were shown for each major geographic area east of the Rockies without exception—the most pronounced gains occurred in the Metropolitan Area of New York, the Pittsburgh territory (Ohio, Western Pennsylvania, Kentucky and West Virginia), the Middle Atlantic States and Southern Michigan.

## *Blue Gumbo*

*(Continued from page 147)*

ises to stand for a long time in the Youngstown district.

Mr. Howard, when asked how he accounted for this unusual achievement in the face of so many obstacles, answered without hesitation,

"First class, modern equipment, first. No one could ask any better performance than we have gotten from the shovels, the grader, and the trucks. Second, an experienced crew that knew what to do every minute and lost no time 'fuddling' around. We were digging all the time, otherwise we could never have moved all that dirt in that time. And third, we have been on the job. The general contractor was pushing us, the other gangs could not work until we opened up the way. In other words, we were 'on the spot' all the time, in more ways than one.

*"Oh, it doesn't do anything. The boss just keeps it to impress the customers."*

"The Republic people were fine, and Heller and Murray are good friends of mine, too, so that we worked together in harmony, and after all, teamwork is what counts. And another thing—that lighting equipment on those shovels helped a lot, don't forget that. I estimate they added 25 per cent to our capacity, for we were working in the days when daylight is scarce, and some days were too dark all day to work without lights."

"How many days were you idle on account of breakdowns or repair jobs?"

"Not a single minute during the whole contract! The only time we lost was a day or two when the company engineers asked us to lay off while they did some necessary work on the ground. Otherwise we lost no time whatever. That is why I say modern, first class equipment is the essential factor in digging against time and cost."

**G. F. Howard, Inc.**

The office of the G. F. Howard Company, Inc., located at 25 West Hylda Street, Youngstown, Ohio, is also near the headquarters of the Eastern Equipment Company, dealers in contractors', industrial and farm machinery, etc. A new building is now being constructed on the company property to house a greatly increased line of equipment. J. D. Williamson is President of the Eastern Equipment Company, and he is also associated with Mr. Howard in the excavating and grading business, while Mr. Howard is actively interested in the Eastern Equipment Company.

Four men are principally responsible for the success of the Republic Steel Corp. remodeling and mill extension contract.

George W. Wallstrom, Vice President of Heller-Murray Company, general contractors, and Superintendent Clyde L. Bletso, were in charge of the major operation; G. F. Howard, President of G. F. Howard, Inc., in personal charge of the excavating work; and J. D. Williamson, President of the Eastern Equipment Company, who kept the machines in tip top condition for their heavy duties in the "blue gumbo."

All are men of mature experience, of the clean-cut, go-getter type, and yet very pleasant and agreeable gentlemen. Their teamwork was a thing of beauty, with results outstanding in speed of performance, excellence of workmanship and the never-say-die spirit that "moves mountains."

Paraphrasing the theatrical slogan, their motto is "THE WORK MUST GO ON."

## *Stretching Road Dollars*

*(Continued from page 149)*

ago. About 50 men were employed removing trees in preparation for widening roads in the future. The original policy was to allow the relief works all of the cut wood they wanted, in addition to their pay. Since, however, these men were getting a higher hourly rate than the regular town crew which was working side by side with them, Mr. Phillips objected. As a result, several hundred cords of the wood were used for town benefits; heating public buildings, taking care of town relief cases, and sold for the town's benefit.

It is through efficiency like this —constant skill in making the best possible use of equipment, labor and job conditions—that the Bethany town road department has built up its excellent record.

# EQUIPMENT
## *You Ought to Know About*

### *Schramm "Utility" Air Compressor*

SCHRAMM Inc., West Chester, Pa., have designed an air compressor that utilizes a new engine speed for compressor operation. By using smaller and lighter pistons and operating at an increased speed in keeping with the modern trend of automotive design, considerable weight savings are secured. These weight reductions are as much as 1500 to 5000 pounds in the various models.

The compressors are of the ver-

tical, straightline construction with cylinders cast en-bloc. Between the compressor and engine units a clutch coupling is provided that allows compressor to be disengaged when starting the engine.

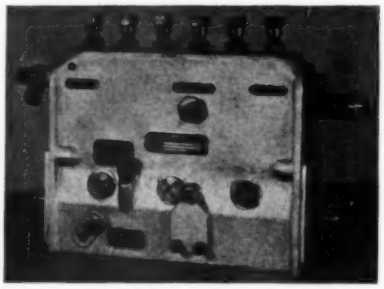
Gasoline powered sizes are offered with air deliveries of 85, 105, 160, 210 and 315 cu. ft. per minute. Diesel powered sizes include the 105, 160, 210, 315 and 420 cu. ft. ratings.

### *Timken Fuel Injection Pump for Diesel Engines*

MEETING the demand for a dependable high speed solid injection fuel pump for diesel engines, The Timken Roller Bearing Company has just announced two sizes of multiple unit, integral cam shaft pumps, one using a 4-9 mm. range of plunger sizes and the second a 5-11 mm. range. At present these pumps are being made for 1, 2 and 6 cylinder engines.

For convenience in installation and in line with American practice, Timken fuel injection pumps are all made to fit standard bases and all connecting parts conform to standard dimensions. Likewise all parts are made on the American production plan, being interchangeable and easily replaced when necessary direct from conveniently located stocks.

The type A or small size pump using a 4-9 mm. range of plungers is adapted for use on diesel engines up to approximately 150 HP and operates at speeds up to approximately 4000 RPM. The B



size, using a 5-11 mm. range of plungers, is ordinarily used on engines from 110 to 250 HP, operating at speeds up to approximately 3000 RPM.

### *"Caterpillar" Graders*

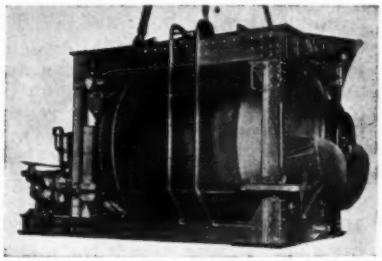
TWO new blade graders, in 12-foot and 10-foot sizes, have been added to the "Caterpillar" grader line. These new models have single member frames and will be known as No. 66 Single Frame and No. 44 Single Frame, since they are in the same weight classes as the No. 66 and No. 44 Double Frame models. They are offered in both power and hand control.

These new machines are designed particularly for combination work in which quick movement of the blade from ditching position to the high rank cutting position is important. With the power controlled models, less than one minute is required to move the blade from one of these positions to the other according to the manufacturer, and with any of the models this may be done without offsetting the blade on the blade arms, or making any changes in lifting or lateral shift links.

### *6-Yard Concrete Agitator*

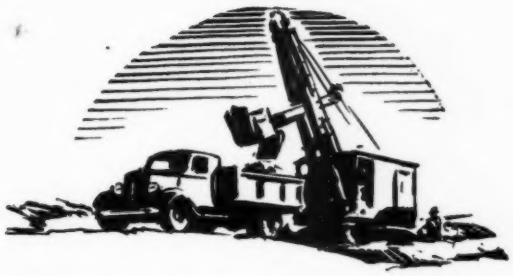
CONSTANT agitation of a concrete mix while the material is being transported by cable-ways or cranes is being carried out by the United States Reclamation Service at its project at Boulder City, Nevada.

The mix is kept in motion by



the use of six-yard agitators, three units of which have been furnished by the Blaw-Knox Company of Pittsburgh. These units include a separate gasoline engine drive and transmission for revolving the drums and agitating the concrete during transit. The agitators are loaded with six cubic yards of mixed concrete at a central mixing plant and then are transported on flat bed trucks to

# 3 GREAT TIRES FOR DUMP TRUCKS!



Let your work decide your tread.

Any one of these three Goodyear Truck Tires will give you the long, trouble-free service for which Goodyears are famous wherever dump trucks work. Each one has a body of patented Pre-Shrunk Supertwist Cord . . . chemically-toughened rubber . . . blowout protection in *every* ply.

For ordinary all-around dump truck service—where you don't know just what the jobs ahead may be, and if you use high pressure tires — pick the All-Weather Dump Truck Tire (1).

If you're banging over loose rocks, plowing through sharp stone—jobs where cutting and jagging and tread-ripping ruin you—pick the Pneumatic Lug Tire (2).

If you're in sand or sloppy going most of the time—where slipping and spinning and lost traction are costing you money—put on the Sure-Grip (3).

Tell your Goodyear dealer what your dump trucks do, where they work. He'll show you the ace Money Saver.

**THE GOODYEAR TIRE & RUBBER COMPANY, INC., AKRON, OHIO**

**GOODYEAR**

**TIRES FOR DUMP TRUCKS**

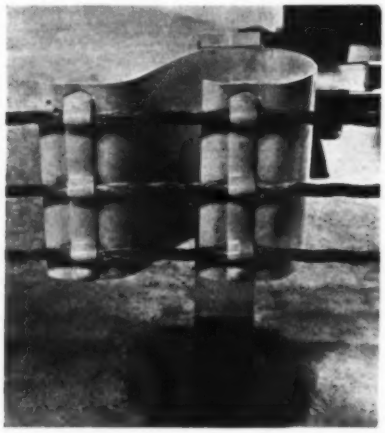


For your convenience in writing to The Goodyear Tire & Rubber Company, Inc., you will find a card bound in this issue.

a point where they can be lifted from the trucks either by cable ways or cranes which hook onto the agitator boxes by means of three part cable slings to transport the agitators and loads to the points where the concrete is to be used.

### *Highway Guard Posts*

A NEW steel highway guard post is being manufactured by the Bethlehem Steel Company. It is claimed that this post per-



mits great economy in guard rail erection costs as it is not necessary to dig post holes for erection. By utilizing a special driving cap they can be driven into the ground with a sledge, and, erected in this manner, the steel post affords resistance to impact or sidethrust equal or superior to that of wood. Tests indicate that this H section or stanchion design post with 4-inch flanges has bearing power on the soil equivalent to a 6″x8″ wood post. The posts can be provided in any weights or dimensions desired.

### *Skidder and Stump Puller*

DORSEY Brothers, Inc., of Elba, Alabama, have just placed on the market the Model "F" Skidder and the Model "B" Stump Puller, both units being adaptable to all wheel and crawler tractors.

The Skidders are especially adapted to logging jobs and are designed to operate over any type of ground. When attached to the tractor in operating position, the entire unit may be travelled at high speed from one setting to another.

The Stump Puller with the flexible shaft drive is for use on jobs requiring considerable land clearing. The construction is so arranged that one operator may control both stump puller and tractor. It will travel over any type ground, will handle stumps and trees up to five feet in diameter, and has the capacity to pull as much as 300 or more stumps per day.

### *Rubberizing Compound Requires No Primer*

HERETOFORE a separate primer has been necessary before rubber coating could be applied to metal or other surfaces to protect against corrosion. This requires extra labor and extra time for drying. The research laboratory of the Self-Vulcanizing Rubber Company, 605 W. Washington Blvd., Chicago, Ill., manufacturers of self-curing rubber plastics and liquids for protection against corrosion and abrasion is now announcing SELFVULC INSULATOR, a rubber compound which incorporates the quality of a primer with a self-curing, cold-curing rubber, which can be applied by unskilled labor by dipping, spraying or by hand brushing.

This new product makes a steadfast bond in one application, but repeat coats to any desired thickness may be added. A vulcanizing period of one hour is required for first or following coats.

Aside from being an insulator and water-proofer, it is used for covering girders, ducts, ventilators, hoods, pipes, tanks, vats, walls, structural steel, etc.

### *Portable Floodlighting Unit*

UNUSUAL portability combined with large floodlighting capacity is claimed for both the 650 and 1250 watt generators developed by the Homelite Corporation at Port Chester, New York. The smaller model weighs only 71 pounds, complete with built-in gasoline engine, while the 1250 watt unit weighs only 93 pounds. Compactness and portability permit either unit to be easily carried by one man or mounted on any piece of apparatus.

Quick-starting action even in severe weather conditions is claimed by the manufacturer. An improved carburetor and independent rotary valve make for smooth running, and advanced choke design prevents flooding. Danger of overheating or freezing is permanently eliminated by the air-cooled engine.

These generators are capable of operating several large floodlights to facilitate night construction and repair work on pipe lines, highways, railroads and other jobs involving excavation.

### *Impact Belt Carrier*

STEPHENS-ADAMSON Mfg. Co. of Aurora, Illinois, have gone into extensive production on their new solid solid rubber roll IMPACT BELT CARRIER as a result of their having recently developed a carrier of this type for their large installation at Inland Lime and Stone Company, Port Inland, Michigan.

The carrier is of specific value to the user of conveying machinery under loading points, in belt feeders, and under the entire length of movable shuttle conveyors, where conveyed material is received.

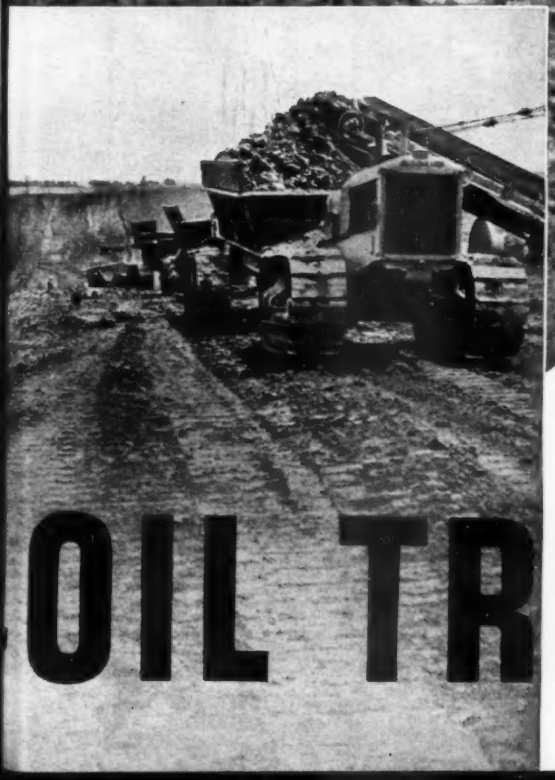
It is built in two styles, the normal and heavy duty types and is tilted to train belt without guire rollers. The three six inch rollers form a 20 degree trough; the IMPACT CARRIER can also be furnished for flat belts.

### *Highway Flare*

R. E. DIETZ COMPANY, New York, have recently added to their line of highway flare torches a new one, known as No. 87. This is a strong torch of self-righting, spherical type, with weighted bottom, and has a burning capacity of 24 hours. It has a new windproof burner with fixed rain shield, fully licensed. Fuel used is kerosene or light fuel oil, operating with ⅞″ round

wick. Finish is red enamel. This new torch is competitively priced and meets the low cost requirements of all types of users.

RS REPEAT



## FRANK EBLEN "REPEATS"

One of the contractors who took the first experimental Model "L" Tractor and "gave it the works" was Frank Eblen of Walnut, Ia. Eblen was so favorably impressed with the experimental machine that he ordered Model "L's" for his own use as soon as they went into production—and he has been a consistent Allis-Chalmers user ever since. Some of his present A-C tractors are shown here.

OIL TRACTORS

# Field Notes

## *What To Do for a Wound*

ANY break in the skin is a wound. Most wounds heal quickly if they are cared for properly. But wounds can become extremely serious if infection develops or if the injured persons lose to much blood.

The best thing, of course, is to have every wound cared for by a doctor, but if a doctor is not immediately available, some qualified person should render first aid at once.

FIRST—Stop the bleeding.

SECOND—Apply an antiseptic such as iodine or mercurochrome.

THIRD—Apply a sterile bandage or pad.

Most infections result from the neglect of simple injuries such as cuts or scratches on the fingers or hands. Serious injuries seldom become infected because they usually get immediate attention.

Here are a few first-aid principles that everyone should know:

If iodine is used, apply a 3 per cent solution sparingly: let it dry before bandaging; usually only one application a day is necessary.

If mercurochrome is used, apply a 2 per cent or 5 per cent solution.

Dressings should be changed when soiled, loose, wet or uncomfortable.

If swelling or pain develops, see your doctor at once.

In some cases wounds must be cleaned or splinters removed; but such treatment should be left to a doctor or nurse.

Keep dirt, fingers and other unsterile substances away from wounds.

Do not put adhesive tape on a wound; to do so may cause festering. Use adhesive only to keep bandages in place.

Remember — get immediate first aid for all wounds, no matter how slight they may seem to be.

—National Safety Council "First Aid Reminder" Pamphlets are the source of the above excellent pointers.

## *How Much Power Does a Bearing Absorb?*

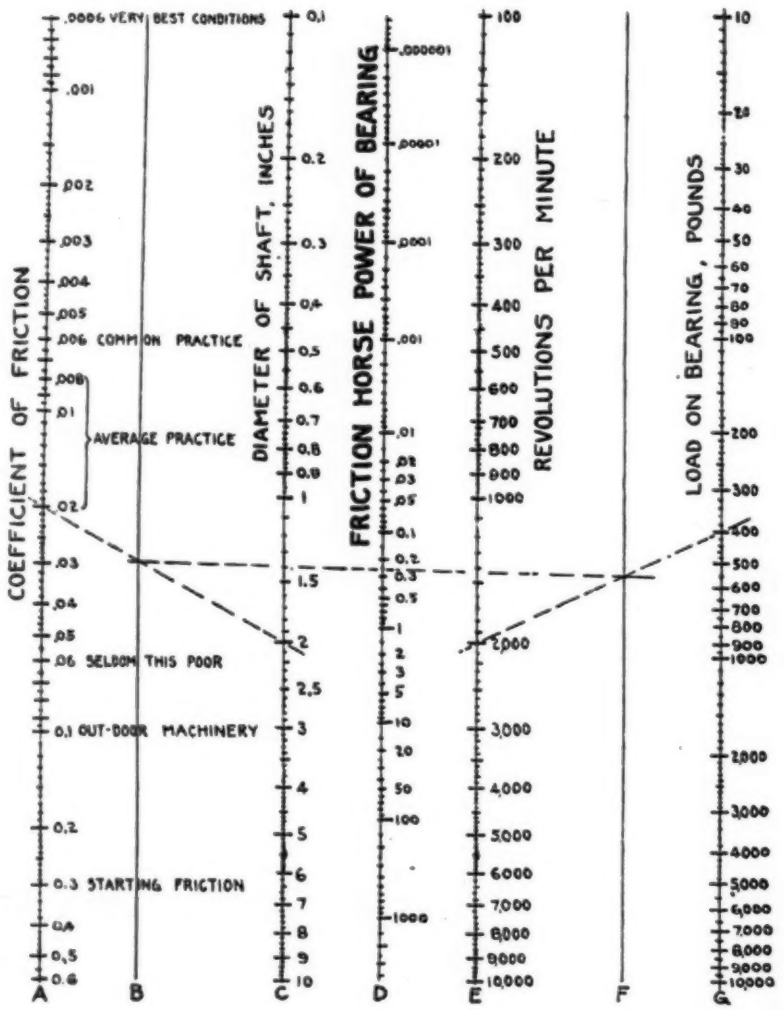
LAY a straightedge across this chart three times, as indicated by the dotted lines, and it will give the horse power consumed by any bearing, coefficients of friction varying from .0006 to 0.6; shaft diameters from 0.1 to 10 inches; r.p.m. from 100 to 10,000; and the load on the bearing from 10 to 10,000 pounds.

For example, using a coefficient of friction of .02 (column A), which is average practice; a shaft diameter of two inches (column C); a speed of 2,000 r.p.m. (column E), and a 400-pound load on the bearing (column G), column D gives the friction horse power as a little over 0.25.

Connect the known value in column A with the known value in column C and locate the intersection with column B. In the same way connect columns E and G, and locate the intersection with column F. Lastly, connect the intersections (columns B and F), and the intersection with column D gives the friction horse power of the bearing.

Column A gives an idea as to coefficients met with in every-day practice, beginning with the very best conditions and ending with starting friction.

Coefficients of friction under the many possible conditions are



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given in text books, in Alfords' "Bearings", and in such handbooks as "Kent" and Marks' "Mechanical Engineer's Handbook."

Only the general safe values of practice are designated on this chart. The principal function of the chart is to quicken the making of computations for anybody who has to do with bearings.

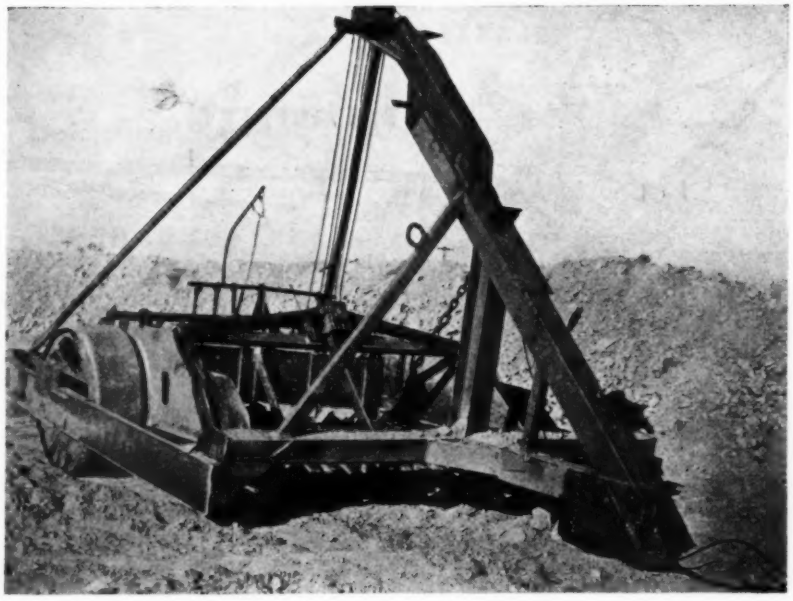
The chart, of course, can be used backwards as well as forwards. Thus if the power absorption by a given bearing is known, and if values in columns C, E, and G are known, the coefficient of friction is quickly determinable. Then, knowing the cofficient of friction with a given oil and in a given bearing, the power required by a similar bearing of different diameter, speed, and loading may be found with an accuracy sufficient for most practice.

The chart explains many things — teaches many lessons. For example, for belt transmission practice it tells us to run belts with as little tension as possible; to run shafts at low speeds if possible; to use small shafts, preferably; and to keep the bearings well oiled, with the proper oil, and in good condition.

## *Scrap Metal Rock Picker*

IN making a compacted fill of 690,000 cubic yards, on the All-American Canal, the Lewis Construction Company was confronted with the problem of removing a considerable amount of oversized stone (5" up) from material hauled from a pre-watered borrow pit 2 miles away. As the most economical means of doing the job the rock picker shown here was built up from scrap metal.

It is a 10 by 10-foot grizzly of 4- by 2-inch bars, fitted with small dipper teeth at the front and notch-welded into an 8- by 8-inch hollow welded axle at the rear. This axle is offset at each end by welding on an 8- by 10-inch box of similar construction, at the top. To the top of these boxes are welded short axles, 3 inches in diameter, which extend through the hollow welded wheels and support the main frame on the ends. The side and rear members of this main frame are of



4- by 12-inch channel, with a plate welded into the flanges of each side member from just back of the axle, by way of reinforcing. The front member of the frame is 8- by 8-inch hollow construction, as is the tongue welded to it at the middle. The front end of the tongue is offset at the hitch, by box-welded scrap metal, to aid in giving proper alignment when in operation. Another hollow 8- by 8-inch member, with offset construction at the top, is braced by a vertical eye beam and angle braced to the front frame member, and supports, at the top end, the boxing of four 8-inch sheaves. At this point two angle braces of pipe extend to the rear corners of the frame. A cable connecting with a lever at the tractor driver's seat, is threaded through these sheaves and through three similar sheaves in a boxing on a metal frame, attached to the front end of the grizzly with heavy hinge pins (3"). This frame is four feet high, and reaches across the front end of the grizzly. It is used to pick up the front end occasionally, by means of the cable, and slide the rock to the rear, where the weight will come on the axle, while the dirt sifts through. A heavy chain from the grizzly to the vertical eye beam guages the maximum depth when machine is going. The picker is dumped through three metal gates, swung from a pipe across the rear corners of a 3½ foot sheet of ½ inch steel which constitutes each sideboard, and is edge-welded to the axle and the ends of the grizzly. The gates are held in place by bar latches, which drop into slotted members welded between the rear ends of the grizzly bars, which extend 6 inches past the axle and are sloped upward. A pipe and lever arrangement is used to raise the gates when dumping, and is supported by vertical members welded to the top of the hinge pipe.

*—Joseph C. Coyle*

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• *In chipping paving, city employees of Phoenix, Arizona, save their hands by bending a small rod double and spot welding each end to opposite sides of the pointed bar which is struck with a sledge. If, and when, the job is finished, and the tool is wanted for ordinary use the handle is easily taken off.*

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**THROUGH CHOKING DUST!** It's dusty enough for the operator to wear a mask on this Penna. coal-stripping operation—but not too dusty for the "Caterpillar" Diesel Tractors to haul big loads away from the shovel hour after hour and day after day.

**TANDEM LOADS IN DEEP MUD!** It's muddy on this excavation contract at Tygart Dam in Maryland—but not too muddy for the "Caterpillar" Diesel Tractors to haul two big wagons in tandem—with every load a pay-load.

There are plenty of tough hauls from shovels and drag-lines—but they're not too tough for the "Caterpillar" Diesel Tractor. Sure-footed traction and power enable it to work under adverse conditions. With wagons single or in tandem, it is *the* economical dirt-mover!

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# SHOTS *from the Firing Line*

### *States to Select Feeder Roads to Be Improved With Federal Aid*

STATE highway departments are to select a system of secondary or feeder roads for improvement with Federal assistance, according to an announcement today by the Secretary of Agriculture. Rules and regulations were issued governing the expenditure of $25,000,000 of federal aid for secondary roads apportioned to the various states, Hawaii and Puerto Rico. The federal funds are to be adminstered by the Bureau of Public Roads in cooperation with the state highway departments. Allotment of these funds to states was reported on page 108 of **EXCAVATING** for January.

The federal funds must be matched by equal amounts of state funds, and are for expenditure on secondary highway construction projects initiated by the various state highway departments and approved by the Secretary of Agriculture. The funds become available July 1 for payment to the states for completed work, and remain available for two years.

The regulations define secondary or feeder roads as including farm-to-market roads, mine-to-market roads, rural free delivery mail roads, public school bus routes, and other important secondary roads. To qualify for this assistance each state must select a system of important secondary highways not to exceed 10 per cent of its highway mileage. The selection of roads to be included in this secondary highway system, the regulations provide, must be based on facts obtained from a highway planning survey in each state, and the federal funds for secondary highways can be expended only on this system. Until such a system is designated, projects may be approved where it may reasonably be anticipated that the roads constructed will become part of the designated system.

The secondary highway systems will be essentially rural in character, the official statement says, although within municipalities sections linking important secondary highways with other main highways may be included. Highways now parts of the Federal-aid highway system or that are likely to be added to it cannot be included in the secondary system.

A wide distribution of benefits in each state is desired. To accomplish this the Chief of the Bureau of Public Roads has determined the minimum percentage of counties in which the funds authorized for the fiscal years 1938 and 1939 shall be used. His ruling states that secondary projects are required in not less than 50 per cent of the counties of each state.

The regulations emphasize that all work done must be consistent with traffic needs. Grading and drainage as first stage construction will be acceptable providing the state agrees to place surfacing or to improve the roadbed later. The regulations specify that the states must maintain in satisfactory condition all roads improved with the federal funds.

Highway planning surveys that will supply all information needed in selecting secondary road systems are well under way in 40 states, and in many, field work is nearing completion. These surveys are being made cooperatively by the state highway departments and the Bureau of Public Roads and are being financed largely with federal funds.

### *Flood Damage*

AS this is written, the Mississippi levee system has the flood under control, and danger of a serious situation in the lower reaches of "the Father of Waters" is remote. Fortunately, there have been no heavy rains to swell the Arkansas and tributaries of the lower Mississippi. But the tremendous flood which would have resulted had these streams, as well as the Ohio, reached flood stages points out the need for plenty of further work along the Mississippi.

With the receding of the flood in the Ohio Valley, the extent of repair work necessary becomes evident. Homes, factories, warehouses, piping systems, and highways will have to be renovated or rebuilt. Contractors will have to

• *Foundation excavation for Parker Dam, on the Metropolitan Water District Aqueduct, is well under way. The river, seen here in center background has been diverted through two 29-foot diversion tunnels on the Arizona (right) side of the site.*

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pitch in and work night and day to get things back to normal, as well as to prepare future defenses for the stricken area.

It has been estimated that highway flood damage alone amounts to $25,000,000. Between $12,000,000 and $15,000,000 will be needed to renovate federal aid roads alone. These figures are rough, of course, and will be revised when the extent of damage to bridges becomes accurately known. In addition to the federal aid roads, Ohio reports indicate that 750 miles of state highway have been flooded and that about $10,000,000 is the extent of the damage.

Regardless of the accuracy of the above estimates, it is certain that a tremendous amount of highway repair and reconstruction must be done, and done in a hurry.

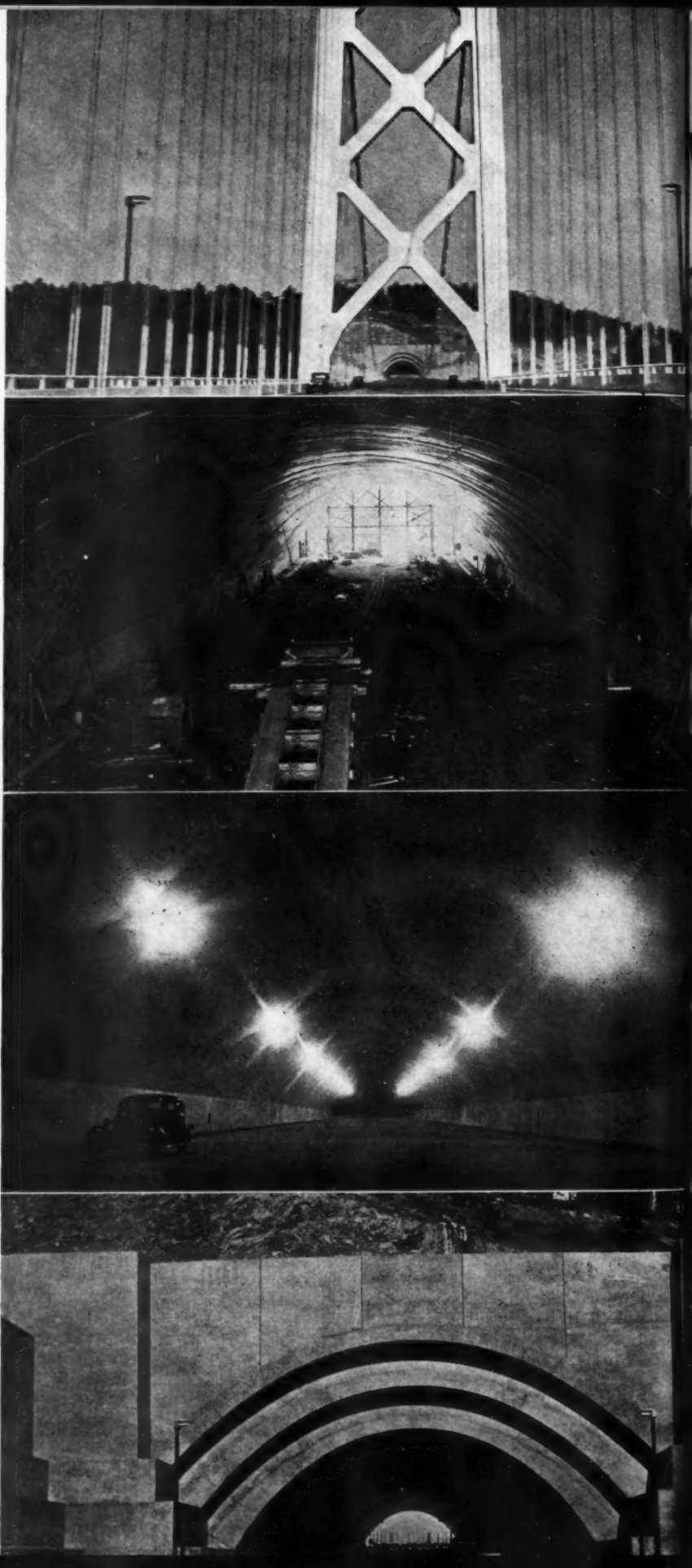
## *Kennett Dam Site Selected*

PRELIMINARY engineering work has been completed on the northern section of the Central Valley project in California, and the storage reservoir on the Sacramento River will be constructed at the Kennett Dam site, provided that satisfactory arrangements can be made promptly with the Southern Pacific Railway Company for moving its tracks from the reservoir site.

The Consulting Board of Engineers, following its December inspection of the project, reported that a satisfactory storage dam could be constructed at any of three sites investigated by the Bureau of Reclamation in the upper Sacramento Valley. These sites were at Table Mountain and Kennett on the Sacramento River and at the Baird site on the Pit River.

"The Bureau of Reclamation engineers have found that the Kennett site is unquestionably a safe site for a dam of a height sufficient to provide the storage that will be necessary," Mr. Page said. "The exact height of the dam to be constructed has not been determined; however, this will not delay the start of construction. The dam will at least be of a height sufficient to provide 3,000,000 acre-feet of storage."

"It is gratifying," Secretary Ickes said, "that the complex preliminary work on the great Central Valley project is now drawing to a close; with the way now apparently cleared for the start of work in two divisions of



• *Top: A view along the San Francisco-Oakland Bay Bridge, showing the entrance to the tunnel through Yerba Buena Island. Center: Two interior views of the tunnel, showing construction activity, and the finished job on the upper of the tunnel's two levels. A sodium vapor lamp system provides excellent illumination. Bottom: A daytime view of the completed upper deck. The six-lane tunnel and the bridge carried 1,400,000 cars in the first 60 days of operation.*

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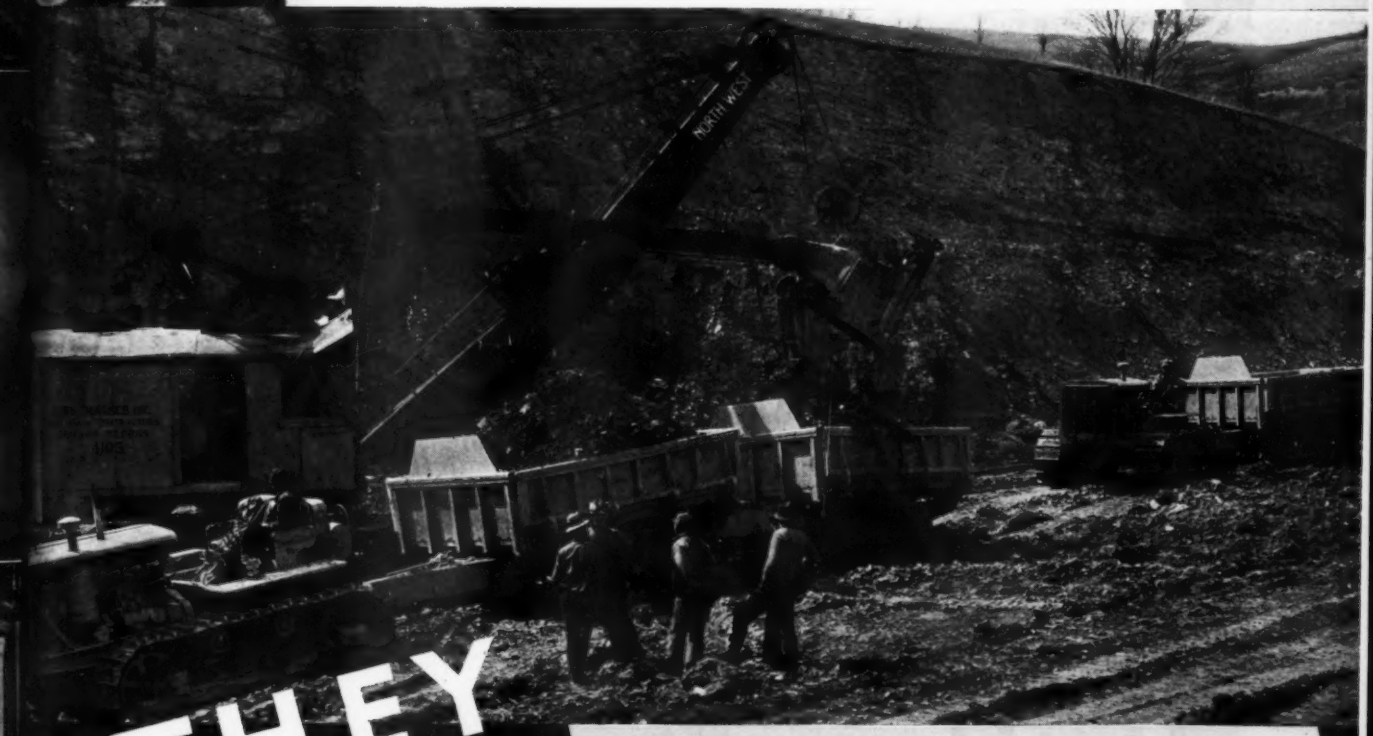


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the project, I anticipate that construction to proceed rapidly."

The main line of the Southern Pacific Railroad between Sacramento and Oregon runs through the Kennett reservoir site. This line must be relocated at a higher elevation. Surveys for this relocation have been completed by the Bureau of Reclamation. Negotiations necessary to the relocation of the railroad are now in progress between the California State Water Authority and the railroad. As soon as they are completed contracts will be advertised by the Bureau for this work.

Comparative studies of the alternative sites for the large storage reservoir on the Sacramento River, which is the key to the Central Valley project, indicate that the Kennett site is superior from an economic standpoint to the others, that its foundation is secure, and that a larger amount of hydroelectric power can be developed there than at either Table Mountain or Baird.

The Central Valley project is designed to alleviate two critical water situations in California—one, the exhaustion of underground water supplies in a large area of highly developed citrus and farm lands in southern San Joaquin Valley and the other, intrusion of salt water from San Francisco Bay in the rich Sacramento-San Joaquin Delta area. The Sacramento River has a large quantity of surplus flood waters which, when stored, will provide an ample supply for all needs.

• *In the shopping and theater section of Buenos Aires, this ½-yard Bucyrus-Erie shovel handled the job of widening Calle Corrientes. The job was rushed through so as to have the street ready for the 1936 Armistice Day parade. Now known as Avenida Collientes, the street presented a fine appearance upon completion of this job.*

## *Road Building in Florida*

By A. H. Vance

FROM Florida comes news of the road building activities which were curtailed two years ago. These consist principally of new construction work on State Highway 26 and the building of an Overseas Highway to Key West.

The State Highway Department has acquired the roadbed and bridges of the old Key West Railroad which crossed the Florida keys to that city prior to its destruction by the hurricane of 1935. Although the damage to this property was extensive and repairs unprofitable for railroad purposes, it will be rehabilitated for highway purposes at what is deemed a nominal expense.

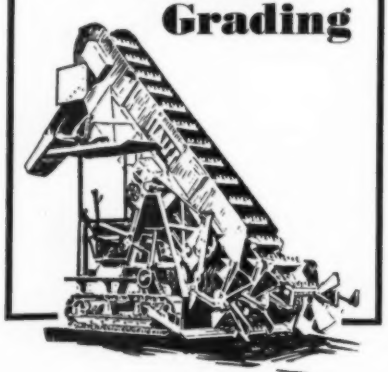
The roadbed on the keys proper is substantially constructed and in most cases of more than ample width for highway purposes. Contracts "C" and "G" call for a total regular excavation of 130,000 cu. yds. These figures cover the excavation work required on the roadway, although the contract also includes considerable clearing and the resurfacing of the roadbed.

Two contracts for bridge work have already been let and work started by Wanamaker & Wells of Orangeburg, S. C. Material handling on this job is done with a ⅜-yard Bucyrus-Erie shovel, which is also being used to fill the approaches.

The repair and widening of the concrete spans of the railroad is interesting. The average width of these spans is less than twelve feet, the necessary additions of more than four feet on each side to widen to twenty feet being made by setting in 12-in. I-beams, notches being cut in the present side members for the purpose.

Substantial concrete construction is used for the center of the roadway, while the extensions are made of slabs joined to the main roadway by a construction joint only. At each I-beam expansion joints will be used to allow


**Shallow Grading**



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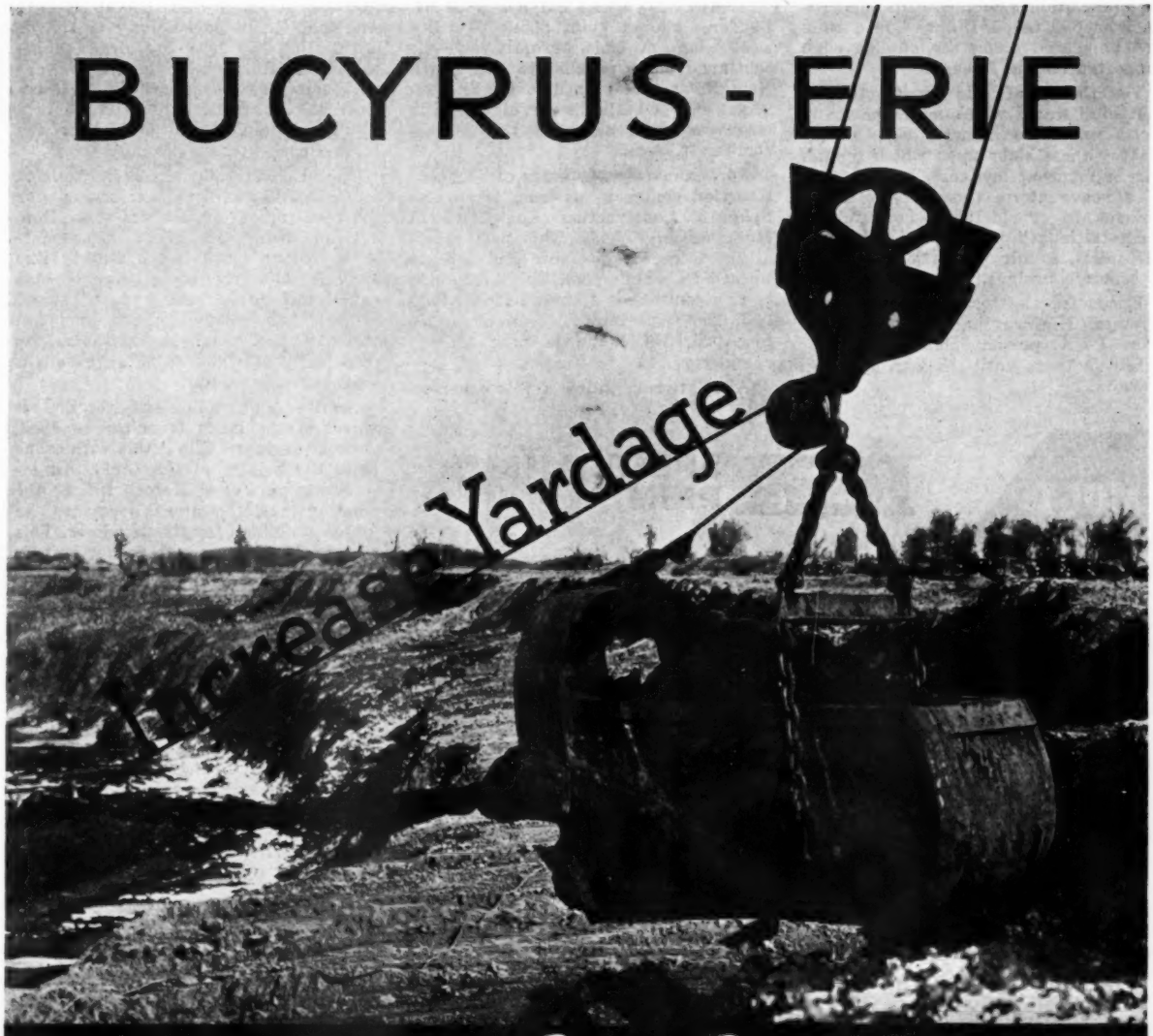


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for a variation in temperature changes of from 65° to 85° Fahr. Guard rails will be placed along the outside edge supported on the I-beams.

The theory of this construction is that high waves which might normally cause extensive damage will merely destroy these slabs upon which repairs can be made at low cost. In the event of a heavy storm this damage might amount to considerable, however, as the total length of the Florida Keys is 115 miles, a fair proportion of which is concrete bridges.

Funds for the reconstruction of the Overseas Highway have been borrowed from PWA, present plans calling for a toll on users until the loan has been repaid.

Highway 26, which extends from Ft. Lauderdale to a point about 20 miles west where it ends abruptly, will be continued as a parallel to the North New River Canal until it finally connects with Okeelanta on highway 25 near the south shore of Lake Okeechobee.

Approximately 2½ miles of this construction contract has been let to the Spagaro Construction Co., Inc., of Moorehaven, Florida. This part starts at the town of Opeelanta and extends toward Ft. Lauderdale. The total value of this contract is approximately $103,000. The work on this section started in April, 1936, and is now nearing completion.

About twenty miles of this construction has recently been let to Geo. D. Auchter Co., of Jacksonville, Fla., for a total of $606,000. Machines, which include a Bucyrus-Monighan 5W are now being moved in from the Okeelanta side, as work will start slightly below this point and extend to the Palm Beach-Broward County line.

The Badgett Construction Co. of Memphis, Tenn., have contracted for fourteen miles of construction from "20-mile bend" out of Ft. Lauderdale north to the Palm Beach County line for $319,000. About six miles of this work calls for dredging to rock and filling in the roadway from the spoil bank of the canal. As this consists principally of white stone an excellent road bed will result.

Another eight miles calls for the removal of the muck from the roadbed, down to rock and filling this with stone from the bottom of the canal. An interesting part of this work will be the blasting under water, necessary to loosen the stone for the draglines. This stone formation, though rather soft, is compact and cannot be handled successfully without the blasting operation.

Marvin Leith, superintendent, will be in charge of this project, and will use two Bucyrus-Erie draglines, a 43B and a 45B. A tractor and a few trucks will complete the equipment used here.

The Florida Everglades consists of a layer of muck ranging from one foot thick to about 8 feet, which does not provide a good road foundation. Removal of this to bed-rock is essential in this work on Highway 26 as well as in all other road work across the Everglades.

Other small jobs under way or nearing completion are the dredging of a turning basin at Port Everglades and a similar project at Miami.

## *Heart Mountain Canal Award*

MORRISON-KNUDSEN Company, Inc., of Boise, Idaho, on its bid of $182,702.50, has been awarded contract for excavating about six miles of the Heart Mountain canal and construction of 12 small syphons, bridges and other structures on the new Heart Mountain division of the Shoshone Federal Reclamation project in Wyoming.

The successful bid was the lowest of 16 received and opened by the Bureau of Reclamation at its office in Cody, Wyoming.

This is the second major construction contract let in connection with construction of the Heart Mountain division of the Shoshone project. The other covering tunnels on the Heart Mountain canal has been in work for several months.

The principal items in connection with the contract awarded today are 510,000 cu. yds. of common excavation, 73,000 cu. yds. of rock excavation and


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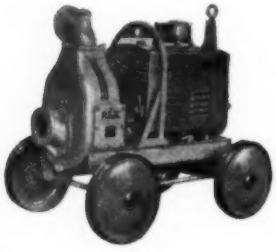

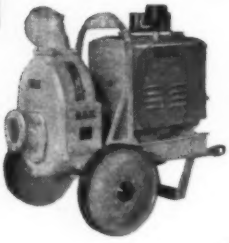

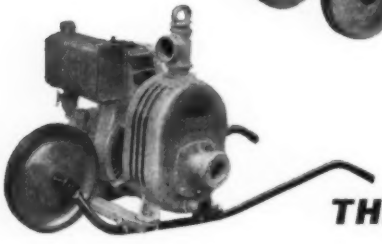

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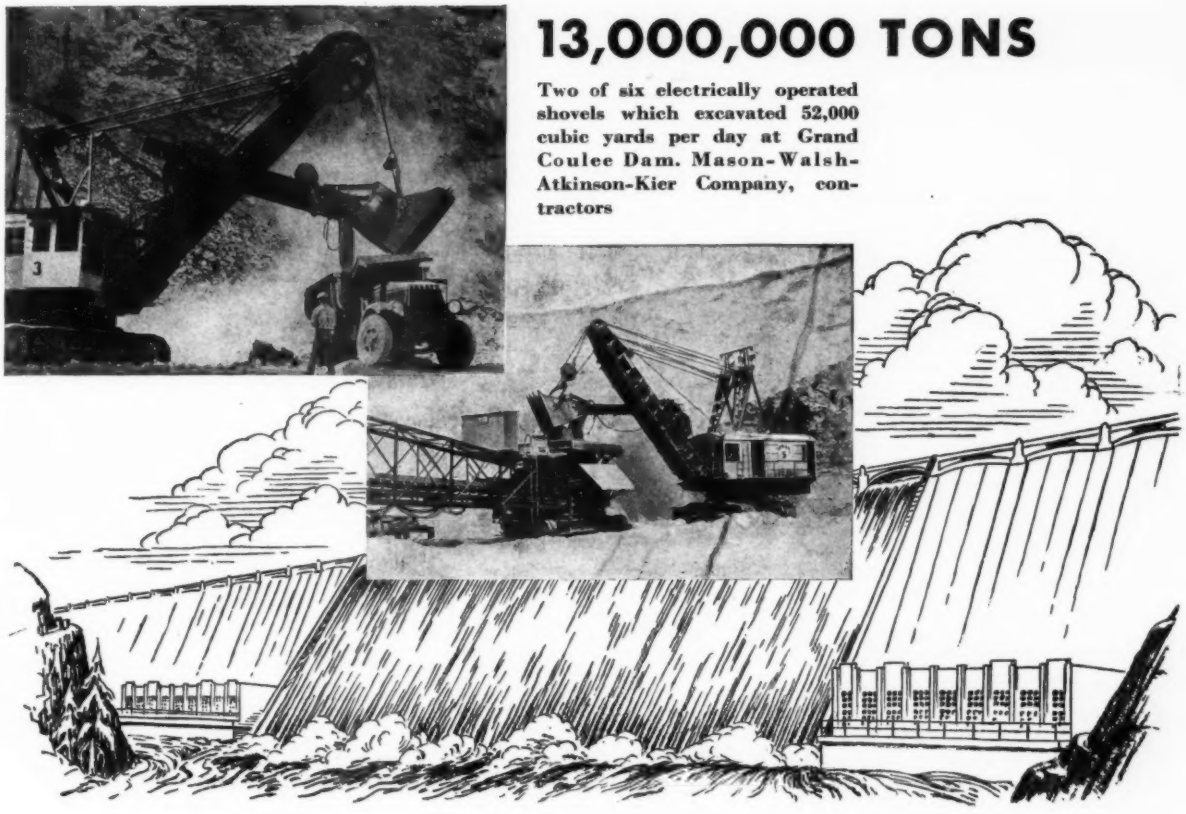

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Two of six electrically operated shovels which excavated 52,000 cubic yards per day at Grand Coulee Dam. Mason-Walsh-Atkinson-Kier Company, contractors

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PREPARATION of the foundation site for this 4000- by 500-foot dam required the excavation of more than 13,000,000 cubic yards of overburden.

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The electric shovels at Grand Coulee set the pace for a mile-long conveyor system. They were instrumental in making possible the record removal of 52,000 cubic yards of spoil per day. Excavation was completed far ahead of schedule.

Electric shovels, conveyors, crushers, concrete batchers, compressors and pumps—these are typical of the machinery for which General Electric furnishes modern apparatus to assure speed and economy in completing the job. For information on any type of electric apparatus, get in touch with the General Electric office in your territory, or write General Electric, Schenectady, N. Y.

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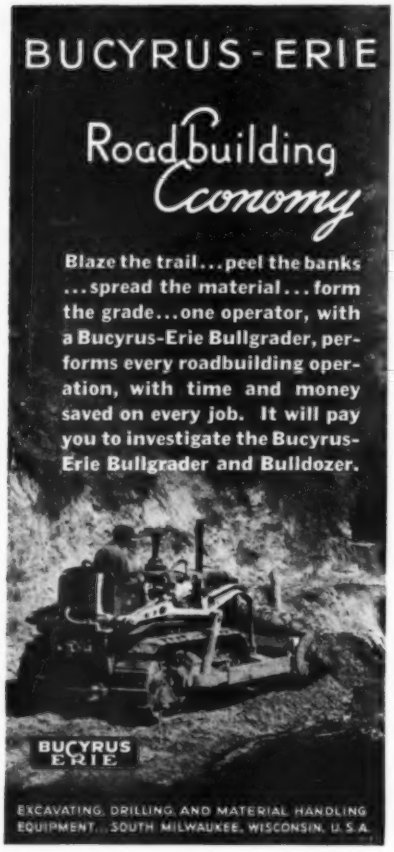
placement of 1,232,000 pounds of steel reinforcement tires.

Work under this contract will begin within 30 days after the contractor is given notice by the Bureau of Reclamation to proceed and must be completed in 350 calendar days.

### *Page Appointed Commissioner of Reclamation*

JOHN C. PAGE has been appointed Commissioner of the Bureau of Reclamation, after serving for 10 months as Acting Commissioner. Mr. Page is a westerner, and intimately acquainted with the problems of conservation and use of available water in the West.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Blaze the trail...peel the banks ...spread the material...form the grade...one operator, with a Bucyrus-Erie Bullgrader, performs every roadbuilding operation, with time and money saved on every job. It will pay you to investigate the Bucyrus-Erie Bullgrader and Bulldozer.
BUCYRUS ERIE
EXCAVATING, DRILLING, AND MATERIAL HANDLING EQUIPMENT... SOUTH MILWAUKEE, WISCONSIN, U.S.A.


Born in Syracuse, Nebraska, he entered the Reclamation Service soon after completing his engineering education, and has worked in the Bureau for 25 years. He has been supervisor of the operation of a federal irrigation project, and chief administrative assistant in the construction of Boulder Dam.

The late Dr. Elwood Mead called Mr. Page to Washington in 1935 to be the head of the engineering division of the Bureau. Shortly after Dr. Mead's death, Secretary Ickes appointed Mr. Page as temporary head of the Reclamation Service.

In that capacity, he has given ample evidence of his ability to administer the far-flung reclamation affairs of the country.

### *Grade Crossing Fund Rules Announced*

THE Secretary of Agriculture has announced the terms under which the states can share in the $50,000,000 federal fund for continuing through the next fiscal year on a permanent basis the program of eliminating hazards at railroad grade crossings. The funds, authorized by the act of Congress of June 16, 1936, were apportioned among the various states, the District of Columbia, Hawaii and Puerto Rico by the Secretary as reported on page 108 of **EXCAVATING** for January become available for expenditure on July 1. The Bureau of Public Roads will administer the funds in cooperation with state highway departments.

These new funds are in addition to the initial appropriation of $200,000,000 of emergency funds under which grade crossing elimination work is now

● *On its Great Smoky road contract, the Arundel Corporation was faced with steep slopes when operations began. This picture shows the staging on which they mounted two Ingersoll-Rand wagon drills.*


**A TRAILER FOR**
**Every Heavy Duty Requirement**

- ***Brakes on all wheels controlled from either end***
- ***Pneumatic Tires***
- ***Meets all road width restrictions***

**Trailers of all types and up to any capacity.**

Write or Wire

**C. R. Jahn Co., LaCrosse, Wis.**



***Here Is a Bargain***
**in used excavating equipment**
(taken from page 184)

BUCYRUS-ERIE 16-B COMBINATION ½ yd. shovel and drag shovel. Used as shovel three days—as drag shovel five weeks. Practically new condition. Located Eastern Pennsylvania. Box 992-SS.

**For other bargains in shovels, draglines, cranes, locomotives, trenchers, and miscellaneous contractors' equipment turn to pages 184 to 187.**

***The largest listing of Used Equipment offered by any Publication Serving the Excavating Industry.***




For your convenience in writing to the advertisers on this page, you will find a card bound in this issue.

**Have Your PRESCRIPTION filled —— before the trouble starts**

Chinese doctors, it is said, are paid only when their patients are in good health.

Your excavators "pay" you only so long as they are in good working order.

The Gatke Corporation has long been recognized as a specialist in preventing costly "shut-downs" caused by brake and friction failures.

Guard your equipment's "health" by having your Gatke prescription filled now. Remember—LARGE or small there is a Gatke Asbestos Brake and Friction Material for every requirement.

℞ We're the doctor—Consult us.

Gatke

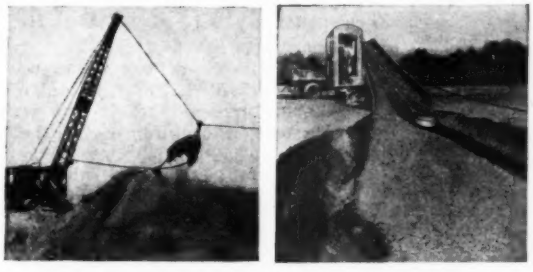
ASBESTOS BRAKE AND FRICTION BLOCKS
WOVEN BRAKE LINING
HYDRAULIC COMPRESSED BRAKE LINING

*"When You Want the Best — Quick"*

**GATKE CORPORATION**

GENERAL OFFICES — INDUSTRIAL DIVISION
228 No. La Salle St. Chicago, Illinois





(*Left*) Crescent Scraper operated by crane moving dirt from borrow pit 300 ft. wide onto levee; (*Right*) Crescent Scraper loading gravel from pit direct into trucks.

**The only *Streamlined* Scraper is the Sauerman CRESCENT**

The unique feature of Sauerman Crescent scraper buckets is the streamline design. These buckets are all gentle curves and flat angles, making for easy penetration of earth materials with slight application of power. The streamline design promotes a smooth "flow" of materials into and out of the bucket, assuring rapid loading and dumping; also enables the bucket to move back and forth over the ground at high speed.

**SAUERMAN BROS.**
**474 So. Clinton St., CHICAGO**

Crescent Scrapers are available in all wanted sizes from ½ to 15 cu. yd. For complete information write for Bulletin 147.

# Hauls *100 tons* per hour at *1.7 cents* per ton

• The economy of track haulage, and the efficiency of Whitcomb Locomotives have written many new records on haulage expense sheets. In deep or shallow quarries, on uneven track, around sharp curves, they have the balance that holds the track and power that moves the load with speed and economy.

The husky, compact Whitcomb Locomotive shown above is owned by the Bird Dog Mine at Cardin, Oklahoma. It handles the entire haulage operation covering 800 acres—supplies more than 100 tons of ore per hour to the mill, at a haulage cost that never exceeds 1.7 cents per ton.

Whitcomb Locomotives eliminate standby fuel losses—time lost in getting up steam, handling coal and cleaning fires.

*There is a size of equipment suited specifically to your requirements.*

Gasoline or Diesel Mechanical Drive
Gasoline or Diesel Electric Drive
Electric Storage Battery
Electric Trolley
Combination Trolley—Storage Battery

•

Whitcomb Engineers will survey your requirements and estimate the savings you can make by an investment in Whitcomb equipment.

**THE WHITCOMB LOCOMOTIVE CO.**

Subsidiary of The Baldwin Locomotive Works
Plant at Rochelle, Illinois. All sales made by The Baldwin Locomotive Works, Paschall Station Post Office, Philadelphia, Pa.

**WHITCOMB LOCOMOTIVES**





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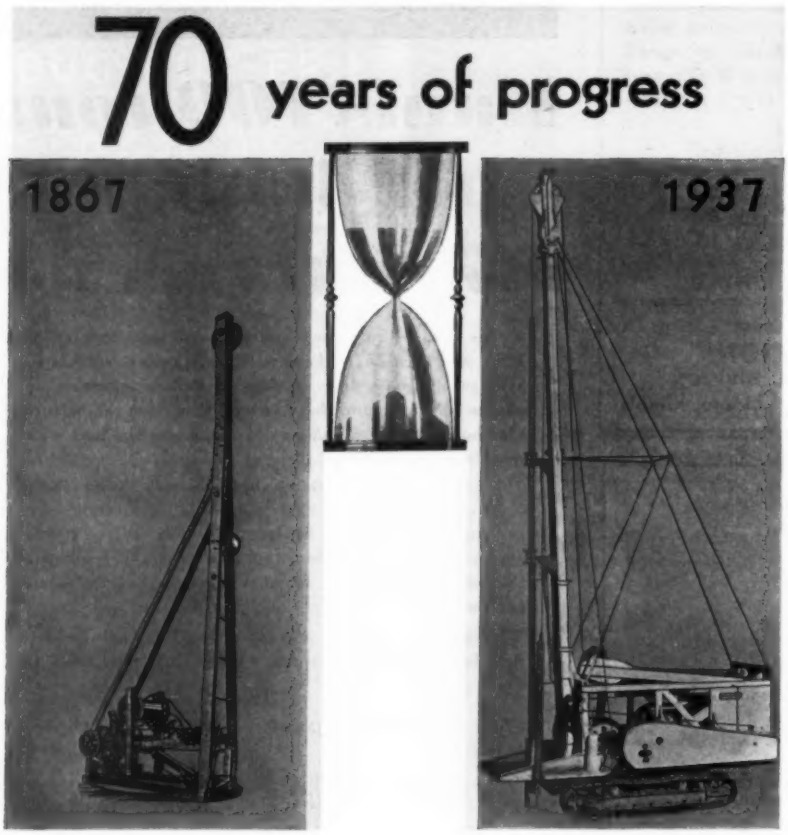
under way and will be expended in much the same way.

Five types of grade crossing elimination and protection developments are eligible: (1) Separation of grades at crossings; (2) installation of protective devices at grade crossings; (3) reconstruction of existing grade separation structures; (4) relocation of highways to eliminate grade crossings; and (5) relocation of railroads to eliminate grade crossings. The funds are available to pay the cost of construction exclusive of cost of rights of way or property damage, and can be spent either on rural highways or on city streets.

To insure a fair distribution of benefits among the railroads in each state, the regulations require that improvements shall be divided among the various railroads so that the amount expended on each shall be approximately in proportion to its mileage. On each railroad, crossings of the greatest hazard to traffic are to be selected for elimination or protection. Initiative in selecting projects for improvement rests with the state authorities who will prepare programs, and submit them to the Bureau of Public Roads for approval.

Where legal authority exists in a state for the physical closure of railroad grade crossings and where, by the construction of a grade separation structure with adequate approaches the use of an existing grade crossing structure is rendered unnecessary for the convenience of the general public, the regulations require that approval of a project for the construction of a grade separation structure shall be contingent upon prior provision for the physical closure of such grade crossing or crossings after completion of the new structure. Any lateral connection necessary to accomplish the physical closure of such existing grade crossings may be included as part of a project and paid for with grade crossing funds.


TIME has brought many changes in Bucyrus-Armstrong drills in their seventy years of existence! But—from 1867 to the present day, they have kept ahead of the field. Today—there is just as much difference between an old-type drilling machine and one of our new, modern, high-speed rigs as there is between a "tin lizzie" and a new, streamlined motor car. You'll get a whale of a kick out of handling a modern Bucyrus-Armstrong. There's a feeling of flexible ease . . . of power . . . of speed . . . and of such hard-hitting drilling action as you've never experienced before. With a line of drills successful since 1867, we are especially proud of our 1937 models . . . the 26, 29-T and 42-T. Write for bulletins. 703FW

BUCYRUS-ERIE

EXCAVATING, DRILLING AND MATERIAL HANDLING EQUIPMENT . . . SOUTH MILWAUKEE, WISCONSIN

BUCYRUS ARMSTRONG


## *Northwest A.G.C. Election*

AT the annual convention of the Pacific northwest branch of Associated General Contractors in Spokane, Ivan G. Anderson, Spokane, was elected president; C. A. Shram, Portland, vice president; George Christensen, Stevenson, vice president; James Crick, Spokane, vice president; Charles Powers, Spokane, treasurer; George Lyons, Spokane, secretary, and C. H. Ludberg, Spokane, director.

## *Caterpillar Sales Jump in 1936*

NEW high levels in sales, employment and payroll during 1936 are reported by Caterpillar Tractor Company, in its annual report to stockholders.

Sales from 1936 amounted to $54,118,003.75, an increase of over 48 per cent from the $36,447,193.28 figure of 1935. Number of employees was increased about 2,500 to a total of 11,500, and average hourly pay was increased to a level higher than that paid during 1929.

Net profits for 1936 were $9,849,592.50, an increase of over 65 per cent from 1935. Expeditures totalling $4,658,485.80 were made for buildings, machinery and equipment modernization.

## *Pan American Highway*

THE opening of the 222-mile section of the Pan American Highway in Argentina, extending from Buenos Aires to Rosario, was inaugurated recently by President Agustø P. Justo, according to the American Road Builders' Association. The section of road is 20 feet wide and is paved with reinforced concrete, except for 30 miles out of Buenos Aires.

The section of the highway from the Texas border at Laredo to Mexico City is completed and has been open to motor travel since 1935.

Work has almost been completed on the 252-mile Rosario-Cordoba section of the highway. From Cordoba, the highway eventually will pass through Santiago del Estero, Tucuman, Salta and Jujuy, reaching the Bolivian frontier at LaQuiaca.



For your convenience in writing to Bucyrus-Erie, you will find a card bound in this issue.

AMERICAN TIGER BRAND WIRE ROPE

**AMERICAN TIGER BRAND WIRE ROPE**

has proved its worth in keeping equipment in operation, in doing away with costly replacements and in lowering operating costs. Experience has proved its superiority. Always use American Tiger Brand Wire Rope.

**AMERICAN STEEL & WIRE COMPANY**
Chicago New York
COLUMBIA STEEL COMPANY
San Francisco
United States Steel Products Co., New York
Export Distributors

UNITED STATES STEEL

HAYWARD BUCKETS

**USE RIGHT BUCKET FOR THE JOB**

Hayward makes all four — clam shell, drag-line, electric motor, orange peel. A Hayward recommendation is unprejudiced.

THE HAYWARD COMPANY
52-54 Church Street
New York, N.Y.

**Any Width to 14 Ft.--**
**Laid Smooth as Velvet--**
**Faster than Your Plant Can Mix**

With its 18 ft. straight-edge runners to equalize the surface, its semi-crawler traction all on hard subgrade, its pug-mill spreader, its ability to blend smooth joints and adjustability up to 14 ft. widths—the Jaeger Paver lays precision smooth pavements, faster and at lowest known cost. Send for Catalog and Prices.

**THE JAEGER MACHINE CO.** 553 Dublin Avenue Columbus, Ohio
*World's Largest Builder of Spreading and Finishing Machines*

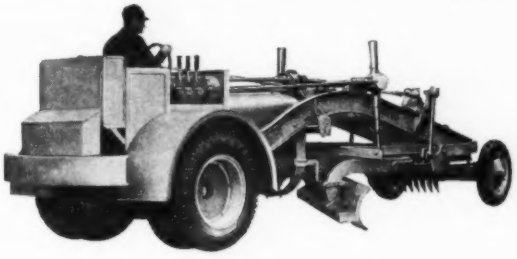
JAEGER *Bituminous* PAVER

*Out in front again!*

WARCO

MEETS

*Every Requirement*



*With several New and Improved Models*

The WARCO Line of Modern Graders includes both Center and Rear Control Models. Correctly designed, Adequately Powered, Ruggedly Constructed, and Economically operated they simplify your Grading or Maintaining problems.

Upper right illustration shows our New Model 33, Power Controlled Rear Control Machine. Lower left, our new Center Control Machine; available with your favorite traction equipment.

**W. A. RIDDELL CORPORATION**
BUCYRUS, OHIO

Successor to W. A. Riddell Co., Hadfield-Penfield Steel Co., American Clay Machinery Co.

ADDRESS INQUIRIES TO DEPARTMENT B.




For your convenience in writing to the advertisers on this page, you will find a card bound in this issue.

# Not in the Contract

Cannibal King (rushing in): Gosh, am I late for dinner again?

Cannibal Queen: Rather! Everybody's eaten.

"I see they're advertising a new kind of underwear without any buttons."

"That's nothing new, I've been wearing that kind for years."

Girl Friend: I'm getting so thin you can count my ribs.

Boy Friend: Gee, thanks!

Old Lady (to parachute jumper): I don't see how you dare to jump so far with only that silk thing holding you up. The suspense must be terrible!

Parachutist: Lady, it's when the suspense isn't there that it's terrible!

Customer: "I don't like the looks of that haddock."

Fish Dealer: "Lady, if it's looks you're after, why don't you buy a goldfish?"

"My dear, "said the loving wife, "the doctor says I must have a change of climate."

"Well, cheer up," replied her fond spouse, "Spring will soon be here."

Many of our young engineers are spending their time tinkering with misses in their motors.

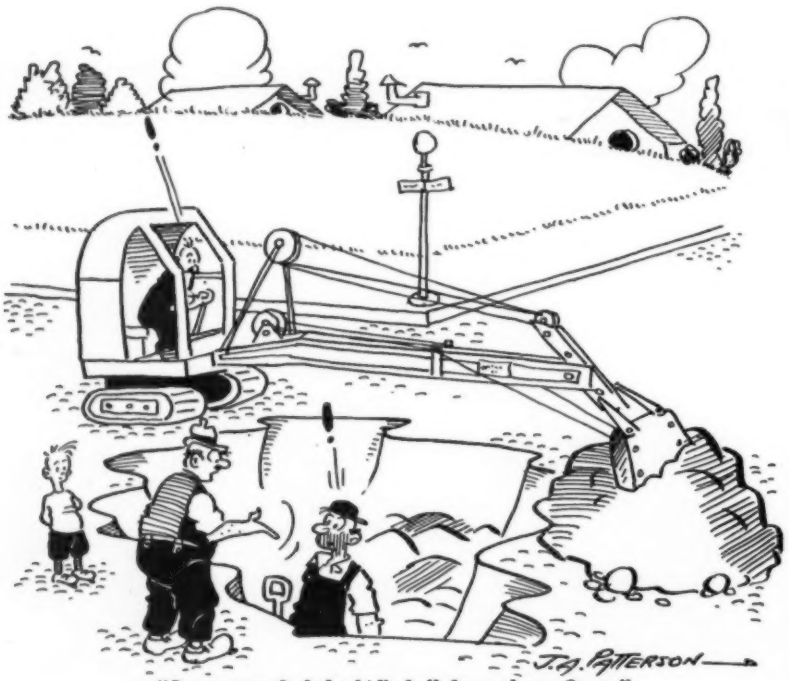
"Jimmy, I wish you would learn better table manners; you're a regular little pig at the table."

Deep silence on Jimmy's part. So father, to impress him more, added, "I say, Jimmy, do you know what a pig is?"

"Yes, sir," replied Jimmy, meekly. "It's a hog's little boy."

A retailer, on receiving the first delivery of a large order, was annoyed to find the goods not up to sample. "Cancel my order immediately," he wired to the manufacturers.

They replied: "Regret cannot cancel immediately. You must take your turn."




*"See can ya find the kid's ball down there, Oscar."*

She came into the police station with a picture in her hand.

"My husband has disappeared," she sobbed. "Here is his picture. I want you to find him." The inspector looked up from the photograph. "Why?" he asked.

Judge: "How many children do you have, Mirandy?"

Mirandy: "Well, Judge, I has two by my first husband, one by my last husband, and then I has two of my own."

Dean: So, you're back in school? I thought that I expelled you last week.

Freshman: You did, but don't do it again because my dad was plenty sore.

She: Have you any Life Buoy?

Druggist: Just set the pace, kid.

Contractor — Whom do you consider the greatest man this nation ever produced?

Friend—I used to think it was either Lincoln or Jefferson but now I'm becoming convinced it was my wife's first husband.

Old Lady: "You don't chew tobacco, do you, little boy?"

Little Boy: "No, ma'am, but I could let you have a cigarette."

The grizzled mountaineer sat in a kitchen with his wife. They were drinking corn liquor out of a gallon jug. At 4 a. m. the door opened and their pretty, 18-year-old daughter breezed in.

The old man jumped up.

"Where yo' been?" he thundered.

"Nowheres," returned the girl easily. "Nowheres."

The mountaineer slammed the jug on the table.

"Don't yo' lie to me," he bellowed. "Any gal who comes home sober at this hyer hour has been up ter somethin'!"

# this faster Way to move Dirt

**BUILT TO LAST**

Sturdy one-piece construction has been accomplished through the use of more than 800 linear feet of welding.

## LOADS AND DUMPS "ON THE GO." ONE MAN OPERATES IT. 35 H.P. TRACTOR PULLS IT.

The Austin-Western 5 Yd. Scraper is meeting with well-deserved popularity. Contractors and Highway Officials find that per dollar invested it is one of the best dirt movers ever built. It is simple to operate with a single cable for every operation and built for the utmost in hard usage. It digs and loads the maximum yardage on *every* trip. Positive control of dumping operation saves grading and rehandling.

**THE AUSTIN-WESTERN ROAD MACHINERY CO.**
Home Office: Aurora, Illinois Cable Address: AWCO, Aurora

*Branches In Principal Cities*

**Austin-Western**

The Austin-Western Road Machinery Co., C-9, Aurora, Ill.
☐ Send a salesman.
Tell me more about
☐ 5 Yd. Scrapers
☐ Motor Graders
☐ Road Rollers & Roll-A-Planes
☐ Blade Graders
☐ Motor Sweepers
☐ Crushing & Washing Plants
☐ Elevating Graders
☐ 12 Yd. Scrapers
☐ Rippers & Scarifiers
☐ Shovels and Cranes
☐ Bituminous Distributors
☐ Snow Plows
S-713

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In writing to The Austin-Western Road Machinery Co., please use coupon or card bound in this issue.

# Book Reviews

A new publication, **Mac's "Proximate Coal Analyses,"** compiled by William C. MacQuown and published by the Coal Information Bureau, Inc., Lessee, Union Trust Building, Pittsburgh, Pennsylvania is now available for immediate delivery. This publication contains proximate coal analyses on the majority of the mines in the United States, alphabetically arranged by the name of the mine, followed in each instance with the following data — location of mine, (County and State) operator, name and address of selling agents, date and origin of analyses, as well as data on the condition of the sample, size and seam.

An alphabetical list of coal operators is also included showing the name and mine when operator only is known. Price of this volume is $5.00.

**"The First 3 Years"** is the title of a 44-page booklet issued by the Public Works Administration under the Administration of Harry L. Ickes.

Illustrations and descriptions of many PWA projects as well as a concise history of the PWA are contained in its pages. Such large enterprises as the Boulder Dam, Naval Hospital of Philadelphia, Pa., New York Triborough Bridge, All American Canal, Grand Coulee Dam, New York Midtown Hudson Tunnel, Oakland-Alameda Bridge, etc., are pictured and described and the general scheme and functions of PWA are well explained.

**The Portland Cement Association,** 33 West Grand Avenue, Chicago, Illinois, has published a booklet describing the design, manufacture, and driving of concrete piles.

This little book is full of illustrations and information on the subjects of determination of foundation characteristics, pile driving, precast piles, cast-in-place piles, sheet piles, load capacity of pile foundations, etc.

You may obtain the booklet by writing to the Portland Cement Association.

Designed to provide a wealth of easily accessible information on rubber hose for industrial use, **United States Rubber Products, Inc.** has just issued its new "U. S. Hose Catalog" for 1937.

United States Rubber Products, Inc., offers in this catalog, its complete line, embracing every type of hose for which a need may arise. In addition it offers the services of its rubber chemists and engineers in solving difficult hose problems for individual firms.

The 1937 catalog contains forty-eight pages, full of illustrations and data easy to read and understand. Among the most important are Air, Welding, Water, Steam, Water Suction, Agricultural Suction, Oil, Gasoline. A section is devoted to Hose Couplings and Fittings.

A 70-page handbook containing complete tables and useful general information relative to the use of Tarmac for road construction and maintenance, has just been issued for free distribution by **Koppers Company's Tar and Chemical Division,** Pittsburgh, Pennsylvania.

The book also contains a discussion of methods and advantages of soil stabilization with Tarmac, condensed specifications for various methods of using road tars, and tables of data. There also is a list of other Koppers products for the highway and public works field such as crack filler, paving pitch, traffic marking paint, dampproofing and waterproofing materials, municipal incinerators, water works gate valves, dam gates, treated timber, American hammered rings, gas holders and welded and riveted pipe.

A very attractive pictorial catalog featuring **Austin-Western** equipment in operation, and providing brief specifications and reference data, has just been published by this company. Such equipment as motors, graders, rollers, scrapers, wagons, crushing and washing plants, pick up sweepers, etc., are described and illustrated.

To obtain this catalog write Austin-Western Road Machinery Co., Aurora, Illinois.

# Trade Notes

Owing to the retirement from business of Mr. John A. Cook, Ruston-Bucyrus representative for the West of England, **Messrs. Ruston and Hornsby, Ltd.,** have taken over the representation of that area and are located in new offices at 28, Baldwin Street, Bristol, 1.

R. B. Renner, who has been with the **Jeffrey Manufacturing Company,** 30 Church Street, New York City for the last 30 years as mechanical engineer, was recently made chairman of the executive committee of the materials handling division of the American Society of Mechanical Engineers. The function of this division of the Society is to spot, coordinate and bring before the engineering public outstanding developments in conveying machinery and its use.

Three managerial promotions in the sales department of **International Harvester Company** have been announced by C. R. Morrison, vice president. The changes are: the appointment of J. L. McCaffrey, former manager of domestic sales, as director of domestic and Canadian sales; appointment of W. F. McAfee, former manager of domestic motor truck sales, to succeed Mr. McCaffrey as manager of domestic sales; and appointment of P. V. Moulder, former assistant manager of the Eastern district, to succeed Mr. McAfee as manager of domestic motor truck sales.

The International Harvester Company also advises that their New York district sales office is now located at 570 West 42nd Street at 11th Avenue, New York City.

# POSITIONS WANTED

**Positions wanted advertisements will be run under this heading for 5 cents per word, minimum charge $1.00. Advertisements for help wanted free of charge.**

***Address all box numbers c/o*** EXCAVATING ***at South Milwaukee, Wisconsin***

**EXPERIENCED OPERATOR**

Operator with 13 years' experience on shovels, 3 on clamshells, and 2 on cranes desires position in South. Has operated steam and gas rigs in road construction, bridge work and basement excavation. Prefers work on Bucyrus-Erie or Lorain gas machine. Single, 31 years old. Can furnish very best references. Located Massachusetts. Box 8501.

**OPERATOR**

25 years' experience on all makes of machines, gas, electric, Diesel, and steam. Has done dragline, shovel, crane, and clamshell work. Can do own repairs; furnish best references. Willing to go anywhere. Now located in Ohio. Box 8701.

**DRILL OPERATOR**

Drill Boss and blaster; 12 years' experience on Air Drill and well drill open-cut work. 34 years of age; married; best of references. Will go anywhere. Now located in Pennsylvania. Box 8702.

**EXPERIENCED OPERATOR**

Experience covers 15 years as dragline, clamshell operator on Diesel and gasoline machines; levee, highway and canal work. Prefers work on Monighan or Northwest. Single, age 31. Can do own repair work and furnish reliable references. Will go anywhere; now located in Louisiana. Box 8703.

**OPERATOR**

Experienced operator desires position; will take work anywhere. Has 17 years experience; two on shovel work, nine on draglines, two on clamshells, four on cranes. Has operated steam rigs five years, electric two years, gasoline five years, Diesel five years. Prefers work on Bucyrus-Monighan or 41-B, steam or Diesel rig, one to six-yard size. Can do own repair work; 34 years old, married, can furnish good references. Now located in Ohio. Box 8601.

**SHOVEL-DRAGLINE OPERATOR**

8 years' experience on shovel work, 2 years' on steam dragline, all in quarry excavators. Willing to go anywhere. Prefer working on standard Marion or Bucyrus-Erie machine. 35 years old, married. Can do own repairs. Special references. Now located southern Indiana. Box 8502.